

**INCREASING TRANSPORTATION OPTIONS
THROUGH CHANGES TO URBAN FORM:
A SUSTAINABILITY AGENDA FOR WINNIPEG**

by

Thomas Young

A Practicum submitted to the Faculty of Graduate Studies of

The University of Manitoba

in partial fulfillment of the requirements of the degree of

MASTER OF CITY PLANNING

Department of City Planning

Faculty of Architecture

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FACULTY OF GRADUATE STUDIES

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Abstract

Transportation systems which are heavily-reliant on the automobile are unsustainable due to their heavy costs for infrastructure and the impacts of the automobile on society and the environment. This practicum investigates ways to address the unsustainability of automobile-focused transportation systems by encouraging alternative travel modes through changes to urban form, specifically increasing density and land use mix and pursuing urban design that is supportive of alternative modes. Transit oriented development (TOD) is one development approach that attempts to encourage alternative travel behaviour, but the concept has limitations; this practicum proposes an expanded conceptualization of TOD from a nodal form towards a nodes and corridors approach.

Winnipeg is identified through a literature review and focus group research as a city that could benefit from having a more sustainable transportation system. International and Canadian examples are investigated to see how urban regions around the world are addressing the question of transportation sustainability. Two major precedents, planning projects in Toronto and Minneapolis, are investigated to identify possible approaches to implementing these ideas. Research is also carried out in Winnipeg to understand the local context. Recommendations are then made to apply the lessons of the research to the Winnipeg planning context.

Major recommendations are the closer integration of transportation and land use planning functions at the City of Winnipeg, the reformulation of plans and the Winnipeg Zoning Bylaw to reflect sustainable transportation priorities and the fostering of public debate around transportation and urban form sustainability.

Research methods employed are document survey, personal interviews and a focus group with key informants.

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Dedication

I dedicate this practicum to my father, who wasn't able to see me graduate. I wish you could celebrate with me, Dad.

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1 INTRODUCTION

This practicum is concerned with the contributions urban form characteristics – especially mixed use, increased density and complementary urban design – can make in creating a more sustainable transportation system. It is also concerned with how such an urban form can be pursued in Winnipeg through municipal planning mechanisms.

This chapter offers a discussion of the research problem that this practicum investigates, and sets out the specific questions it attempts to answer. It also describes the research methods employed in that investigation, limitations and biases of the research, and a description of the intended audience.

1.1 PREAMBLE

Automobiles are a wonderfully flexible mode of transportation. When combined with an extensive system of roads, there is no other mode that can take you to so many places so quickly, with so little direct cost, and without having to share personal space with or wait for others. However, since so many people feel that way about cars, many of our cities have been given over massively to their use, a fact which has brought a whole host of unintended problems. As the dominance of the car in Western countries appears to reach its crescendo point and the personal vehicle begins rapidly to gain ground in developing countries, the criticism of the automobile and its impact on cities is becoming louder and more comprehensive.

Planners have been attempting to address problems created by automobile use for many years now, with limited success. The premise of this practicum is that in order to combat the transportation problems presented by a system overly-dependent on the use of the car, a comprehensive planning approach is necessary. The approach should attempt to create an urban environment more favourable to other modes such as cycling, walking and public transit.

1.2 PROBLEM STATEMENT

Transportation systems which are heavily-reliant on the automobile are unsustainable due to their heavy costs for infrastructure and the impacts of the automobile on society and the environment.

1.3 PURPOSE AND SCOPE OF PRACTICUM

The primary purpose of this study is to identify comprehensive urban form planning policies and processes that will serve to make urban form and transportation more sustainable by making more attractive the use of alternative transportation modes, thereby reducing the need to travel by automobile. It examines the urban form elements that have been shown to encourage more sustainable travelling behaviour (i.e. cycling, walking and public transit). The practicum attempts to identify a policy model for the creation of urban areas that are sustainable in terms of urban form, and urban form's resulting effects on transportation behaviour.

The research investigates as minor precedents examples from the international municipalities of Groningen, Netherlands, Freiburg, Germany and Curitiba, Brazil, and the Canadian examples of Hamilton, Edmonton and Vancouver. It also investigates as major precedents two North American municipalities that have made planning attempts to realize these goals, Toronto and Minneapolis. These minor and major precedents identify the conceptual ideas for changes in urban form, the implementation processes, and the relative success and/or failure of those measures.

The lessons from these investigations are then applied to a consideration of similar strategies for the Winnipeg context. The study investigates current City of Winnipeg plans such as *Plan Winnipeg*, and plan implementation tools such as the Winnipeg Zoning Bylaw, to illustrate the potential for pursuing sustainable urban form and transportation goals through those and similar mechanisms.

The objective of the research is to identify sustainable urban form policies and their transportation impacts, and explore how they might be applied to urban contexts.

This study will serve as a source of information for cities like Winnipeg that could achieve a more sustainable urban form through the reform of planning policy.

1.4 RESEARCH QUESTIONS

Three key questions are examined in this practicum. The first question attempts to identify the types of built environment best suited to travel by modes other than the automobile. The second investigates real-world planning applying related concepts. The third aims to identify the potential for applying these concepts more specifically to the Winnipeg context.

- What characteristics of the built environment encourage urban travel by modes other than the automobile?
- What has been the practical experience of urban areas attempting to change their built environment to accommodate and encourage travel by multiple modes? How were the plans formulated? What lessons do they offer for the implementation of such a program?
- Considering the experience of other municipalities, and considering the context of the current policy environment, how might such an agenda be applied to Winnipeg?

1.5 RESEARCH METHODS

1.5.1 *Interviews and Focus Group*

The primary research component employed semi-structured interviews and a focus group. Qualitative methods were chosen to be the most appropriate for this study. Qualitative research assumes that reality is subjective and multiple as seen by participants in a study. It involves evolving decisions. The process is inductive and involves a mutual simultaneous shaping of factors. It is context-bound (Creswell 1994). This characterization relates closely to the nature of the research to be undertaken and the types of answers sought.

Qualitative interviews are a type of interview in which the interviewer has some freedom to ask different questions or the same questions in different orders for different respondents as long as certain predetermined topics are covered. The predetermined questions constitute an interview guide (Jones 1996). The fundamental principle of qualitative interviewing versus a closed interview is that respondents are able to express their own understanding of a concept or event in their own terms. This is important because it allows for discovery of the intricacies that distinguish good implementation from bad implementation. It allows the researcher to address situations where good policies or models have been put forth, but where implementation has been poor (Patton 1982).

A focus group was carried out with key informants on the Winnipeg context. The focus group method offers the opportunity to compare and contrast differing opinions, and perhaps through collaborative discussion come up with greater insights than might be discovered in individual interviews.

Qualitative interviews were carried out to understand the successes and limitations of policy precedents in other cities. Interviews with key informants involved in formulation of plans and their implementation aimed to answer the following questions: 'what was the intention of this planning process?'; 'how was it done?'; and 'why did those approaches work or not work?'. With regard to applying a sustainable transport agenda to urban form in Winnipeg, a focus group with local key informants explored the questions 'could it work?' and 'how could it be done?'

For interviews, key informants were chosen to offer a variety of perspectives on the planning processes in Toronto and Minneapolis: the political perspective, the planning profession, the development industry, and community attitudes. For assessing the potential for the Winnipeg context, focus group members were chosen for their knowledge of and interest in local transportation and land use planning processes.

The selection of key informants for the Toronto and Minneapolis precedent studies was initiated with internet research about the two planning projects in those cities. In the case of Toronto's Avenues studies, the City of Toronto has placed much of the resulting material on its website, including the names of City Councillors, planners and members of the public that were involved with the process in various capacities.

Planners, a politician and a member of the public that had served on the St. Clair Avenue Study steering committee were identified in this way. The identification of Minneapolis key informants was carried out in a similar way, with further support from Richard Milgrom, who had recently moved from Minneapolis and was familiar with the CHI planning process and the individuals involved.

Identification of participants for the Winnipeg focus group was carried out in collaboration with committee members Ian Wight and Susanne Dewey-Povoledo who between them have a broad knowledge of those involved in both transportation and land use planning processes in Winnipeg. Internet research was somewhat useful as well in identifying individuals that were involved in such initiatives as the Winnipeg Zoning Bylaw Review process.

Although great success was found in obtaining interviews with desired candidates for the Toronto and Minneapolis studies, success was more limited with the Winnipeg focus group. A broad-based wish list was cobbled together, identifying possible participants from private sector planning, the Winnipeg Planning Property and Development Department, the Winnipeg Public Works Department (responsible for transportation planning), Winnipeg Transit, academics from the universities of Winnipeg and Manitoba with urban issues and planning expertise, local architects and employees of the federal government with an environmental background. But while the wish list was comprehensive, there was a great deal of difficulty in getting invitees to accept. This was a combination of timing (July is holiday season, and a meeting of 8-10 people is difficult to arrange at any time), work-related commitments (one confirmed participant cancelled at the last minute) and in some cases to a lack of interest (one invitee expressed reluctance to participate in student research). In spite of best efforts to find participants, the focus group consisted of 4 members instead of the 10 hoped for. While the discussion was fruitful and informative, the opinions expressed therein were not as broad-based in their experience, interests and expertise as were originally desired.

Interview guides for the interviews and focus group can be found in the appendix at the end of this practicum.

1.5.2 Document Survey

Background research for the practicum consisted of the review of relevant literature. Two small-scale literature reviews investigated the negative environmental, economic and social impacts of the automobile, and definitions of sustainability. An in-depth literature review investigated the elements of the built environment that are thought to contribute to alternative travel behaviour, using as a jumping-off point a particular development approach that aims to encourage alternative travel behaviour, transit-oriented development (TOD). This research attempted to answer the questions 'what are the problems' and 'what are the elements of a solution?'

Documents were identified through keyword searches on University of Manitoba research databases, through Google Scholar and by browsing the catalogues of U of M and U of W libraries. Internet searches resulted in the discovery of helpful websites, and were particularly useful for researching the policies of particular municipalities. The bibliographies of books and research papers were mined for further resources.

Further analysis considers documents and draft by-laws associated with the Comprehensive Review of the Winnipeg Zoning By-law (maps, summaries of public consultation sessions, etc.) so that the recommendations of this practicum respond to the directions taken by that review.

1.5.3 Precedent Studies and Case Study

The research methods described above were combined to produce the case study form that characterizes much of this practicum. A case study entails "the detailed and intensive analysis of a single case...is concerned with the complexity and particular nature of the case in question" and is most commonly associated with "a location, such as a community or organization" (Bryman 2004, 48-49). In the case of this practicum, the communities or organizations identified as 'cases' are municipal governments (i.e. the City of Toronto, the City of Winnipeg).

A common concern with case studies is the 'external validity' or 'generalizability' of the research, considering their detailed analysis of specific context: case study researchers must not "delude themselves that it is possible to identify typical cases that can be used to represent a certain class of objects, whether it is factories, mass media reporting...or communities" (Bryman 2004, 51). The numerous differences and variables between the municipalities studied by this practicum mean that ideas generated by one precedent or case may not be directly applicable to another.

This practicum has attempted to facilitate comparison by offering a similar format for each case studied. However, a distinction is made between the principal 'case study' (Winnipeg) and the other municipal 'precedent studies' in recognition of the difficulty of comparison between unique contexts. Rather than drawing concrete conclusions, the minor and major precedents contained within this practicum offer examples and indications of potential paths for the principal case study, meant to guide thought rather than offer proof.

1.6 LIMITATIONS AND BIASES

This practicum recognizes that a move towards more sustainable transport in urban areas requires more than simply an updated land use plan or an improved zoning by-law. A real shift will require, first and foremost, a change in public attitudes towards transportation, and will require more people to make different choices. Although the physical environment can support or discourage alternative choices, it still requires the individual to choose. This practicum has attempted to indicate some ways in which these broader cultural shifts could be encouraged, but a complete understanding of such complex questions would constitute a different study altogether.

Policy shift should be approached comprehensively. This practicum attempts to illustrate the potential for change if a sustainable urban form agenda is pursued through general municipal plans and zoning by-laws and other planning processes and mechanisms. While these processes and mechanisms have wide-reaching impact, the adaptation of policy at all levels of government – provincial housing policy, for example – and in all spheres of municipal activity – municipal land taxation, for example – would

aid further the urban form agenda, as would widespread public demand for viable alternative transportation options.

Finally, time is often a limitation in research, and this practicum is no different. A longer timeframe would have allowed many avenues of inquiry revealed by this research to be followed up on. Suggestions for further research can be found in the concluding chapter 7 of this practicum.

1.7 INTENDED AUDIENCE

This research, especially the recommendations resulting from it (summarized in the concluding chapter), are intended to be of primary interest to those directly involved in the planning of our transportation and land use systems. These would include land use planners, transportation planners, municipal administrators and policy analysts whose activities involve transportation and/or land use, and municipal politicians who, with regard to the issues investigated in this practicum, are the ultimate decision-makers in our cities. In addition to these primary audiences, it is expected that this research would be of some interest to civil engineers and land developers, whose practices would undoubtedly be impacted by ideas suggested in this practicum. Academic researchers and students are also an intended audience, and areas for future research are suggested in the closing chapter of this document.

1.8 CHAPTER OVERVIEW

Chapter 2, the literature review, lays out the theoretical principles upon which this practicum is based. It investigates the various negative impacts of automobile use on the environment, the economy, society and human health. It offers a definition of sustainability, with a focus on how that definition relates to transportation and urban form. It looks at the concept of transit oriented development, its forms, and the physical characteristics of environments that are supportive of alternative transportation choice.

Chapters 3 and 4 consist of the minor and major 'precedent studies' which are investigated to identify lessons and general principles that may be useful for analyzing the Winnipeg context. Chapter 3 gives an overview of international and Canadian cities, each of which are at various stages of shifting towards more sustainable transportation systems, have taken various approaches to the problem and have had varying degrees of success. Chapter 4 is an in-depth investigation of planning projects in Toronto and Minneapolis that pursue sustainable transportation goals through a corridor redevelopment approach. The planning processes are described and analyzed, as are the policy contexts in which these projects are unfolding.

Chapter 5 is the Winnipeg case study, which investigates the existing policy context, describes administrative attempts to move towards a more integrated planning approach at the City of Winnipeg, and offers the results of a focus group which discussed the potential for applying a sustainable transportation agenda to Winnipeg.

Chapter 6 offers recommendations for adapting Winnipeg planning policies and processes in pursuit of a sustainable transportation agenda. It attempts to combine the lessons of the literature review and precedent studies with the analysis of the Winnipeg case study in order to identify practical measures to improve planning in Winnipeg.

Chapter 7 summarizes the research findings and the resulting recommendations. It also suggests directions for future research.

Chapters 8 and 9 are the bibliography and appendix, the latter containing the interview guides used for the interviews and the focus group carried out as part of this practicum.

2 LITERATURE REVIEW

2.1 MULTIPLE CHALLENGES OF AN AUTOMOBILE-BASED TRANSPORTATION SYSTEM

Several trends in Western countries during the 20th century contributed to increasing car use. Rising incomes throughout the century meant increasing car ownership. Shrinking household sizes contributed to more and more people travelling alone. Expanding labour forces meant larger proportions of the population needed to travel for work. Changing lifestyles meant increases in the numbers of trips for leisure and holidays. Changes in urban structure were characterized by decreasing densities over time and the decentralization of employment and shopping, primarily in favour of peripheral, automobile-oriented areas. Suburbanization, 'edge cities', out-of-town shopping and country-based recreation increased the distance between the beginning and end of journeys, and urban traffic changes were characterized by longer and longer trips, more and more of which were taken by car (OECD 1995). These trends have not altered with the arrival of the new century; and what is more, we can see that they are now becoming powerful forces in developing countries as well.

2.1.1 *Economic Efficiency*

Massive growth in wealth for many years made expensive automobile-infrastructure relatively affordable. But as this sprawling urban form has become more dominant, its costs have mounted and are becoming less affordable, in spite of continued economic growth. Lower density means "each yard of linear infrastructure – water and sewer mains, roadways, even curbs – serves fewer households," (Burchell et al 2005, 50) costing more but serving fewer people. As well, the separating out of uses and the emphasis on single-family home construction has been a challenge to municipal budgets in that inexpensive single-family houses and other residences require the most services

for the least tax dollars due to the need for schools and other residential services. Ironically, municipal governments have often responded to resulting budgeting challenges by pushing for new development to expand the tax base, such that new development takes priority over maintaining or upgrading existing infrastructure, thought to be a drain on resources (Burchell et al 2005; Newman & Kenworthy 1999). The connections – between escalating infrastructure development, operation and maintenance costs, other municipal service costs, decreased urban density and overall tax yields per capita and ever-expanding land development – are often not made.

In addition to the budgetary strain caused by automobile-oriented infrastructure there is the cost of roadways themselves. Motorists often assume that the vehicle and fuel taxes they pay fully cover roadway costs, but they actually fall quite short. Local roads are mostly funded through general taxes. Direct costs to drivers would need to increase by “40% if vehicle user fees were to cover all roadway costs” (Litman 2003, 208).

As the primary mode of transportation has shifted over time from walking to public transit to personal automobiles, in each case there has been a great dispersal of people and thinning of the urban form. But there has also been a constant limit to the amount of time people have been willing to spend travelling to major destinations – approximately 1/2 hour. Because of this, massive investments to streamline the road network, reduce congestion and shorten travelling times have had a different result: they have instead made it easier for more and more people to travel greater distances in the same amount of time, maintaining or increasing the numbers of people on the roads and adding fuel to the fire of urban dispersal (Newman & Kenworthy 1999).

The pace at which new development eats up land surrounding urban areas is alarming, especially in the United States: “From 1982 to 1997, the U.S. population grew by 17% while urbanized land grew by 47%” and an estimated “2.2 million acres of prime farmland, forests, wetland and other open space are converted into developed land each year” (Burchell et al 2005, 38). At the extreme, between 1970 and 1990 the population of Los Angeles increased 45%, while its land area increased 300%! These rapid expansions are directly related to vehicle miles travelled (VMT), which in the US increased 140% from 1950 to 1990 while population increased only 40%. Growth in use of cars and of urban use of land is much faster than population growth. One of the problems associated

with this trend is that the location of most new development is on prime farmland, affecting the viability of local farming due to development pressures and raising questions of food security (Cieslewicz 2002). Although the development industry's rapacious appetite for land is a bigger problem in the US than elsewhere, rapid urban expansion can be seen in Canadian cities as well, even Winnipeg with marginal population growth (Leo 2003).

Of course, impacts on land are not just a question of economic efficiency and access to agriculture. Land use sprawl also plays a "major role in the loss of biological diversity by reducing or changing the character of animal habitats," (Cieslewicz 2002, 33) bringing us to the question of the environment.

2.1.2 Environmental Responsibility

Our current transportation system is heavily dependent on oil. Oil is used in the construction of roads, processed to create the gas, diesel and jet fuel that propel our vehicles, the plastics that they are built from and the lubricants and other products that keep them running. But oil is not a renewable resource.

There is increasing agreement worldwide that petroleum resources are being used up much too quickly, considering our dependence on them. 'Peak Oil' theorists suggest that the last drop of oil is not really what we should be worrying about, either, but the point at which demand for oil begins to outstrip supply. Estimates as to when this oil production 'peak' will occur range from it having already happened (witness the recent spikes in world oil prices) to 2030 or later (Kunstler 2005; Roberts 2004; Whitelegg & Haq 2003; Newman & Kenworthy 1999). Technological alternatives are being sought, but come slowly: the world's major automakers are "racing to introduce into the market reliable vehicles, but nobody has succeeded. No clean technology has yet been fully developed" (Destefani & Siores 2003, 100). Regardless of the precise date of this shift in energy availability, there is general agreement that it will happen soon and that we need to prepare ourselves for it by reducing our dependence on oil (Gilbert 2006; Ramsay 2006).

But resource scarcity is not the only problem with a transportation system reliant on the burning of a fossil fuel. The earth is undoubtedly getting warmer. There is disagreement about the causes of this, but a prime suspect is greenhouse gases. Transport was responsible for 22% of greenhouse gas emissions in the EU, 25% in Canada and one third of all emissions in the US in the 1990s, and was also the single largest source in each case (Whitelegg & Haq 2003; Transport Canada 2001; Cieslewicz 2002). The amount of greenhouse gas emissions is also growing, much faster than emissions from other sources:

“Emissions of CO₂ from transport in the EU increased by 47% between 1985 and 2001. Other sectors increased by 4.2%. More than 30% of final energy in the EU is now consumed by transport” (Whitelegg 2003, 118).

The problem is not lack of controls, but human behaviour that counteracts the gains made by regulation. Although emission targets for the automobile industry have been set in Europe and the United States, technological gains in this area are more than offset by consumer purchasing and driving behaviour: large, fuel-inefficient vehicles such as SUVs continue to be popular and average vehicle occupancy is falling, increasing the numbers of vehicles on the roads (Whitelegg 2003). Yet even abandoning SUVs for more fuel-efficient vehicles would not necessarily fix the problem of increasing emissions and fuel consumption; fuel efficiency “that brings lower operating costs is likely simply to result in still more driving” (Cieslewicz 2002, 32). Cieslewicz suggests that we are giving back some of our clean air benefits by driving more and we are driving more because of development patterns that demand it. In addition to air pollution impacts, he points out that runoff pollution from roadways is now the largest source of water pollution in the US.

The impacts of automobile use on the environment can sometimes seem a bit abstract. Scientists can tell us that there are immediate, pressing problems, but seeing beyond our own day-to-day experiences is a challenge: “If things are warming up, then how do you explain those -40 degree temperatures last January?”; or “Sure, pollution exists, but we don’t have smog in *our* city”. In other ways, however, the impacts of

automobile use are very visible, yet we show a remarkable capacity to avoid or ignore them.

In a 1995 report by the OECD, traffic congestion was acknowledged to be a problem by all 20 countries participating in the study, with traffic noise recognized as a major problem in most cities. Traffic is the most common cause of unwanted noise in people's homes, and a major cause of stress for both transport users and residents close to major routes (Banister 2002; OECD 1995). More than simply an annoyance to be ignored, "noisy environments can cause hearing impairment, raise blood pressure, increase the rate of cardiovascular disease and impair the learning ability of children, as well as provoke annoyance responses and changes in social behaviour" (Whitelegg & Haq 2003, 16).

The gaseous emissions from transport also have direct impacts on our health and ability to function, even if it is not always possible for individuals to make the connection between cause and effect. Carbon monoxide is linked to "reduced work capacity and manual dexterity, poor learning ability and difficulty in performing complex tasks. Nitrogen oxides and volatile organic compounds are precursors to ozone, which poses health risks to the elderly, the young, and to persons with respiratory problems. It damages lung tissue, aggravates asthma, induces choking, coughing and stinging eyes" (Cieslewicz 2002, 31).

There is significant evidence showing that people living automobile-dependent lifestyles are less likely to be physically active and more likely to be overweight, and the suburban neighbourhoods they live in do little to encourage different behaviour (Burchell et al 2005; Frank et al 2003). According to a recent study, Canadians are more overweight than ever before. This fact is linked to increasingly sedentary lifestyles brought on, in part, by driving for most trips rather than pursuing more active modes of transportation (CBC 2005).

And of course, impossible to ignore, there are the deaths: in 2000, an estimated 1.26 million people worldwide died as a result of road traffic injuries, a number which made up fully one quarter of all injury deaths, beating out all other sources of injury including war and interpersonal violence (Peden et al 2002).

2.1.3 *Social Equity*

The concept of freedom is often linked with equality, but the freedom offered by the ownership and use of automobiles is not equally distributed, nor are the negative impacts. With regard to the environmental effects of automobile use, the people who cause these effects are usually not those most affected. High-income households

“typically own more cars and make more and longer trips, and so use more energy and generate more greenhouse gas emissions than low-income households. But they also tend to live in quiet suburbs with clean air, whereas low-income households frequently live along noisy and polluted thoroughfares, yet without compensation from the suburban commuters who use these highways” (Wegener & Greene 2002, 37).

Although the car-focused transportation system in North America provides a relatively high level of service for motorists, people who for any reason cannot drive an automobile often face severe mobility problems: “inferior transportation compounds the problems facing people who are economically or physically disadvantaged, limiting their opportunity for education, employment and social activities” (Litman 2003, 209). The cost of car-based transport, while relatively affordable for medium- and high-income households, represents 15-20% of average household expenditures, the “second largest category of total consumer expenditures, and is particularly high for lower income households” (ibid.).

Taking full advantage of the car-based transportation system requires an initial investment and subsequent monthly expenditures for one or more private vehicles, “potentially consuming a substantial proportion of a poor household’s income” (Helling 2002, 137). Of course, once people have made the choice, willingly or unwillingly, to become car-owners, there are benefits to be had:

“Home buyers with less to spend find they can ‘drive until they qualify’, finding lower-cost housing at the edge of metropolitan areas. Sprawl can dilute congestion while accommodating unlimited use of the automobile. It distances new development from the fiscal and social problems of older areas while allowing residents to live in economically homogeneous areas

in which crime is perceived to be lower and houses are expected to appreciate steadily” (Burchell et al 2005, 15).

But these benefits for the auto-mobile in society come at the expense of the quality of life (or life itself!) of those who cannot or will not follow them. Amongst different road users, fatalities are high for pedestrians and cyclists, much higher than for drivers; “calculations indicate that the fatality rate per kilometer for walking and cycling in the UK is 15 and 12 times, respectively, the rate for car travel” (OECD 1995, 53). Road traffic accidents are not distributed equally between different social groups, either. In the UK, a child in the lowest socio-economic group is “six times more likely to be killed or seriously injured than a child in the highest group. The cars of the rich and powerful kill the children of the poor” (Whitelegg & Haq 2003, 22). There have been suggestions that, rather than continuing to attempt to increase automobile safety, which does little for victims of automobile accidents who are not inside a car, “policies for reducing injuries need to be reoriented towards encouraging use of the modes incurring the least threat to other road users, rather than the reverse” (OECD 1995, 54).

The current system of automobile-based transport delivery contributes to, and is defined by: dispersed land use patterns and the declining provision of local services, declining public transport services, disparity in car ownership and exposure to accidents, pollution and community severance. The effects of these characteristics are unequally distributed, tending to affect the mobility and social access of low-income and excluded groups such as children and the elderly more heavily than others (Clifton & Lucas 2004). A lack of adequate alternative transport provision means that certain sectors of the population experience a reduced ability to participate in employment, education, training, healthcare and other opportunities; this in turn “undermines their life chances, with a cost to both the individual and the state” (ibid., 33).

2.1.4 Human Livability

For those who choose or are forced to remain in neighbourhoods affected by heavy traffic, the impacts are disheartening for livability and community. For his seminal

work, *Livable Streets*, Donald Appleyard conducted interviews with residents of streets with differing amounts of traffic. He classified these streets as heavy, medium and light traffic streets. He canvassed residents for their impressions and opinions on matters such as the severity of traffic hazards, noise, stress and pollution, neighbouring behaviours, sense of belonging and neighbourhood ownership, and sense of privacy. For each criterion, residents of the medium traffic street felt more negatively impacted than those on the light traffic street, and those residents of the heavy traffic street felt the impacts of traffic even more acutely.

“Heavy traffic did indeed create a whole range of problems for residents: it was dangerous, noisy, and its effects on neighbouring and sense of possession of the street were apparently devastating. People had withdrawn altogether from HEAVY street, leaving it to the traffic” (Appleyard 1981, 26).

The vitality and culture of the city is reduced as public spaces are increasingly dominated by cars rather than people. There is also evidence suggesting that safety from crime in the city is reduced as public activity gives way to private life (Newman & Kenworthy 1999).

2.2 TRANSPORT AND URBAN FORM SUSTAINABILITY

“We are creating an unequal, polarized, polluted European society where most money is spent on the irrelevant wishes and needs of the hyper-mobile and least on the quality of accessibility within 5 km of where we all live. In the process we are destroying European civilization with its fine cities and strong cultural identity and its patchwork quilt of fine landscapes. We are destroying habitat, ecology and biodiversity. We are destroying regional identity, regional food and local jobs and we are making our children ill. We are creating a polarized and divided society where the poor and the weak will be expected to absorb the environmental and health consequences of the hyper-mobility of the rich” (Whitelegg 2003, 31).

This description may come across as being a bit alarmist, but in view of the evidence presented in the previous section, it is hard to dismiss John Whitelegg’s summary of the situation. And considering that he is referring to Europe, with public

transit, walking and cycling traditions that are relatively much stronger than those in the US and Canada, we have to wonder what sharp words he would find to describe our activities on this continent.

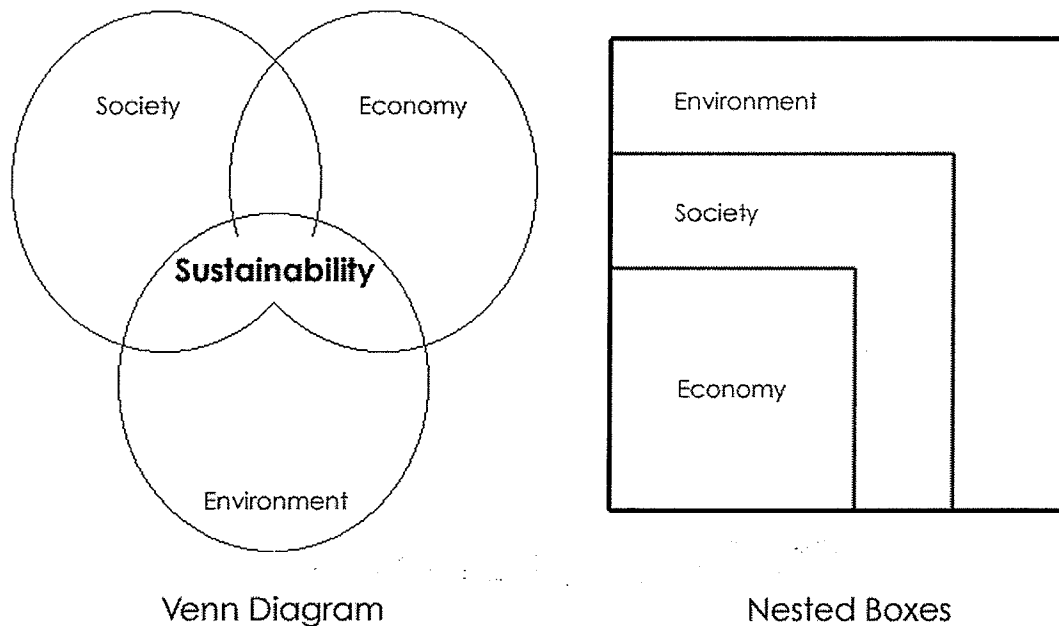
It seems this is a situation that should not continue and that, in the long run, will not be possible to continue. In short, it is unsustainable economically and environmentally and on grounds of social equity, human livability and health.

2.2.1 *A General Definition of Sustainability*

Sustainability is by definition a broad concept. Nicholas Low (2003) refers to the 'engineering model' of sustainability (although this model is often referred to by planners as well) as a Venn diagram of 3 overlapping circles comprising 'social', 'environmental' and 'economic' concerns, with sustainable practice occurring at the balanced intersection of these three spheres (see Figure 1, next page). He suggests, however, that a more appropriate image would be that of a series of nested boxes. It is important to recognize that society and the economy, although we often conveniently forget it, cannot exist outside of the limits of the environment. He places the economy within the box of 'society' since, being based on commercial exchange, the economy is a social construct that finds its roots in our societies and relies on societal agreement for its continued functioning and existence. Different social values, for instance, could radically change the way the economy functions, but changes in the economy do not necessarily mean society must follow suit.

Commentators on various aspects of sustainability have suggested that the key component of sustainability is *progress towards an ideal*. Social sustainability is social integration: "sustaining *progress* towards the kind of fair society in which the good of each (individually) coincides with the good of all (collectively)" (Low 2003, 9). From an environmental perspective, sustainable places seek "to purposely reduce and minimize their ecological footprint, i.e. reduce their impacts on the environment" (Portney 2003, 18).

Figure 1: Conceptualizations of sustainability



Source: Adapted from Low 2003

Change can occur. Sustainability is not based “on fixed relationships. Two main variables influence it: one is human aspirations; the other is technology. People can change their ways and technology can reduce the inputs and waste associated with any given standard of living” (OECD 1995, 30). Progress towards sustainable cities therefore depends on collective agreement and action regarding the need for changes in lifestyles and the use of technology. Of primary concern to planners, however, is fostering behavioural change through changes in policy and the built environment.

2.2.2 The Global View

In 1987, the Brundtland Commission report *Our Common Future* declared that “humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987, 8). While this definition is perhaps too vague to chart a path forward, the Commission also suggested that the burden of achieving global sustainability fell primarily on the shoulders of those in the developed world. Sustainable

development “requires a change in the content of growth to make it less material- and energy-intensive and more equitable in its impact” (ibid., 52). In other words, there is enough in this world for everybody, but there are those who are taking too much, and those who are getting too little; what is needed is a rebalancing.

Global transport trends suggest that citizens of developing countries are focused on catching up with the lifestyles most Europeans and North Americans have been living for many years now. There has been massive growth in car ownership in India and China, countries which combined are home to roughly one third of the world population (Hu 2003; Banerjee-Guha 2003). Growth in vehicle miles travelled in developed countries has slowed in recent years (but is still growing), while the use of automobiles in developing economies is exploding (Whitelegg & Haq 2003).

We cannot keep those in other countries from following us down this problematic path, but we can rein in our lifestyles to perhaps have an impact on the target the rest of the world are chasing. Indeed, if countries such as China and India are intent on achieving automobile-based lifestyles for their citizens, it is imperative that those of us in the over-consuming West make strides to reduce the global impact of our combined activities.

2.2.3 *The Local Potential*

Although some changes to transportation policy need to be undertaken on a regional or national scale, local changes can also have an impact and have benefits to the localities that pursue them:

“Local planning offers many possibilities – changes in transportation and land-use patterns alone at the municipal level can significantly reduce resource consumption and, at the same time, improve local quality of life...they should reduce local land and transportation costs, increasing the competitive advantage” (Wackernagel & Rees 1996, 141).

Winnipeg is not immune to the challenges of sustainability, and shows several discomfoting symptoms that should be addressed. Using the Winnipeg experience of inner city abandonment in favour of automobile-oriented suburbs as his example,

Christopher Leo draws the conclusion that, "in the long run...the typical North American metropolitan development pattern seems likely to be sustainable only at the expense of inner city deterioration, usually followed by deterioration of the first ring of suburbs" (Leo 2003, 219). This appears to be a roundabout way of saying that the pattern is not, in fact, sustainable. But the situation might have been avoided: with a less "auto-dependent, more compact form of development, the suburban road system...could have been less extensive, and the transit system less of a drain on the treasury" (ibid., 218).

Economic challenges and inequities in Winnipeg abound. The recent Norwood/Main bridges replacement had a final cost of \$102 million. The construction of Bishop Grandin Boulevard was undertaken at great cost. Extension of Winnipeg Transit service to the Island Lakes neighbourhood was approved, in spite of the need for heavy subsidization of the route. These projects signify costly new infrastructure and services for the City of Winnipeg, primarily serving suburban residents, at a time when municipal finances are thinly stretched. In contrast to these new investments, the City is unable or unwilling to invest in the maintenance of existing infrastructure; shortfalls of maintenance funds in 1997 for existing regional and residential streets were \$10.2 million and \$27.5 million, respectively, with residential streets receiving a mere \$2.5 million for their upkeep (ibid.). The intense debate over the planned suburb of Waverley West is further evidence of this problem, with critics of the development arguing against it on economic, social and environmental grounds, in spite of attempts by proponents to present it as a sustainable development (Dasgupta 2006; Sjoberg 2005).

In addition to the question of investment and equity, however, active transportation is increasingly being recognized as an issue that Winnipeg should pursue, especially for reasons of resident health. There is significant interest in active transportation that could be stimulated by the provision of a supportive physical environment (City of Winnipeg 2005). Winnipeg is a city that would stand to benefit from an urban development approach that is less costly from an economic perspective, more equitable from a social perspective, is less of a burden on the environment and which offers transportation choice.

2.2.4 A General Definition of Urban Form

Urban form can be described from a macro or micro perspective. The micro scale, the level of the street, is the subject under investigation in the following section, and includes such elements as the relationship of buildings to streets, the character of those streets, the character of the buildings along streets, their size, shape, the uses that go on in them and the intensity of those uses, and so on.

At the macro, city-wide scale, urban form consists of the interrelationship between transportation and locations of activity. This means the collective shape of our roadways and transit systems, the locations of work, shopping and residence, and so on, in relation to one another. From the perspective of sustainable transport, 'good' urban form is that which reduces the lengths and duration of trips, reduces reliance on cars, enables efficient public transit, encourages walking and cycling, and reduces transport-related pollution and accidents (Williams 2005).

2.2.5 Synthesis – Sustainable Urban Form and Transport

Pursuing sustainability objectives by adapting urban form and transport planning requires consideration of the relative unsustainability of current practices. If sustainable cities are those that are progressing towards an ideal of balance among the nested boxes of the environment, society and the economy, then such cities must be making active attempts to remedy the problems contributing to the imbalance.

Sustainable practices will work towards progress on each front, and in as many ways as possible. Sustainable urban form and transport will mean an increase in the cost effectiveness of municipal infrastructure. It will mean reducing the pace of urban expansion into the surrounding countryside, or perhaps even halting it. It will mean reducing dependence on fossil fuels for transport. It will mean a reduction in pollution in various forms: noise pollution, water pollution, greenhouse gases and other airborne emissions. It will mean increasing the potential for people to move around by more active modes to improve physical health. It will mean improving the accessibility of the

transport system for marginalized groups (the poor, young, old, disabled, or those preferring a car-free lifestyle) and improved choice for all. It will mean an improvement in urban livability by winning back the use of public space from the automobile.

Overall, sustainable urban form and transportation planning practice will encourage a rebalancing of the transport system by reducing automobile traffic in favour of an increase of transport by alternative modes which are less problematic and consumptive of resources: cycling, walking and public transit, and a decreased need for travel overall. Transport will become multi-modal, with different choices being possible for different types and lengths of trip.

2.3 URBAN FORM CHARACTERISTICS AND ALTERNATIVE TRANSPORTATION CHOICE

Many different planning concepts are advanced in pursuit of the goals of sustainability. Many of these have taken aim at the challenges posed by the automobile and have resulted in concepts for compact cities, walkable cities, more socially equitable cities and so on. It is the planning concept of transit-oriented development (TOD), however, that will form the jumping off point for this literature review, owing to its explicit integration of land use and transportation goals with the end result of improvement in the economic, social and environmental functioning of cities in mind. It is also a planning approach that appears, so far, to have made only modest inroads into the hegemony of the automobile in North America.

The hopes for TOD are high and, if achieved, would be laudable. In *The New Transit Town* (2004), Dittmar and Ohland present TOD as a form of “walkable, mixed use urban development” around new and existing rapid transit stations with the potential to provide residents with “improved quality of life and reduced household transportation expenses, while providing...stable mixed income neighbourhoods that reduce environmental impacts and provide real alternatives to traffic congestion” (3). The creation of “vibrant” and “diverse” neighbourhoods is a stated goal, and the attention devoted in their book to discussing questions of placemaking, and the importance of

making transit-oriented neighbourhoods beloved places in their own right, shows that the concept of place is highly valued by TOD advocates.

This hopeful theorizing makes several connected assumptions. It assumes that if the option is there, citizens will make the choice to walk and take transit more, to make use of shops and services within walking distance of their homes, and perhaps even choose to work in the same neighbourhoods as they live. This is the thinking that pushes for the development of transit nodes which are dense, walkable and mixed use. The connector between the various transit nodes is normally the high-speed transit route, preferably a rail line. What happens along the transit route is not really the concern; rather it is the transit stop that gets all the attention. Is it really possible to make every single transit stop a destination in its own right? Does a transit station have enough influence over development patterns to shape an entire neighbourhood?

Dittmar and Ohland admit that “many of the first phases of these new transit towns fail to meet these important objectives” (31). Although TOD has undoubtedly had success stories, there could be broader-based application of TOD concepts that could offer sustainable transport benefits in a different form.

The idea that the nodal form is the ideal for TOD, or indeed for most any type of activity centre, is well-entrenched in planning thought. The influence of this idea can be seen, not only in TOD writings and policy, but also in guidelines for neighbourhood design, and many other documents that aim to describe the ideal shape of communities.

TOD is typically demarcated as development “within a half-mile radius around [a] transit stop” (Dittmar & Ohland 2004, 21). A survey of US transit agencies identified a broad consensus of TOD as “a pattern of dense, diverse, pedestrian-friendly land uses near transit nodes” (Cervero *et al* 2004, 7). In *Transit Villages in the 21st Century*, Bernick and Cervero (1997) describe transit villages as being much like traditional communities, except that their “unique and distinguishing feature is that the train station and its immediate surroundings function as the focal point of the community” (6). They also suggest that it is the presence of this type of nodal focal point, and an associated civic core, that will lead to people developing a “sense of belonging and an attachment to the community” (6). The City of Calgary’s *Sustainable Suburbs Study* (1995) suggests that every neighbourhood, or collection of neighbourhoods, should have a discernible

centre. These “community centre and neighbourhood nodes must be located strategically and should be as central as possible” (23).

These descriptions of nodal form sometimes seem to suggest that neighbourhoods exist to serve transit and the community centre, rather than the other way around, and one wonders whether all it takes to reorganize the functioning of a community is the presence of a rapid transit station or a discernible ‘centre’. If one listens closely, however, it is possible to hear suggestions for a different conceptualization of TOD.

There are 3 specific questions to be investigated in this section:

Firstly, is there a broader conceptualization of transit-oriented development that might improve on the model and more successfully achieve the goals of transport sustainability?

Secondly, mixed use is often presented as an integral aspect of sustainable transportation because it places different uses within closer proximity of one another, making the car less necessary and other modes more attractive. There are several different ways of approaching mixed use as a concept: what form or forms are preferred for reducing automobile use and why, and what benefits are they expected to offer?

Finally, what effect does built form have on travel behaviour, and if we are looking to encourage travel by modes other than the automobile (walking, cycling and transit), what characteristics should the built form have?

2.3.1 An Alternative Form of TOD?

Transit-oriented development is often referred to as a subcomponent of the American real estate development movement known as New Urbanism. New Urbanism could be described as a total development ideology, complete with its own manifesto (the Charter of the New Urbanism). Transit-oriented development is more of a specific development approach than a complete way of thinking about communities, but the two share much in common, and the core concepts of TOD can certainly be said to be New Urbanist in nature.

The 2-page Charter of the New Urbanism makes numerous references to the ideal shape of city regions, and the place of transit, walking and bicycling within them. Sustainable transportation modes are suggested as the backbone of the transportation system: "The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence upon the automobile". In order to ensure that public transit can be a convenient alternative to the car, "appropriate building densities and land uses should be within walking distance of transit stops". Streets are not simply for the use of the car: "A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use". The Charter also suggests that the existing city should be strengthened before new areas are developed: "Metropolitan regions should develop strategies to encourage...infill development over peripheral expansion". The Charter does recognize that automobiles are the mode of choice when it states that in the contemporary metropolis, "development must adequately accommodate automobiles" (It is not clear what is meant by 'adequately accommodate', however).

New Urbanist writers and practitioners tend to focus on the advantages of rail-based transit to achieve the goals of communities that wish to be car-independent. In *Suburban Nation*, Duany *et al* write "rail corridor designations are particularly significant, as they provide an opportunity for transit-based development, the ideal way to organize growth. Whenever possible, future development should be organized along a transit corridor in the manner of our historic streetcar suburbs" (145).

This comment seems to dismiss the potential for bus-based transit systems to impact urban form and transportation choices. High capacity bus systems in cities such as Ottawa and Curitiba, Brazil have been shown to significantly influence land use patterns, where supportive policies are in place (Cervero 1998). It is also an odd comment in the sense that it is the demand of rail-based transit systems for significant distance between stops that has given rise to the nodal concept for TOD around transit stations. This is in contrast to the linear, connected, streetcar-type of development they advocate in the second sentence.

The principal difference between “streetcar and railroad suburbs was that streetcars were designed for relatively low speeds and stops at intervals of as little as 100 meters. This gave rise to a linear form of development, which led to the appearance of commercial strips along streetcar lines, with residential districts constructed in continuous bands on both sides of the line” (Crawford 2002, 57). Streetcars, of course, are a form of rail-based transit, but there is a distinction to be made between streetcars and LRT, subways or commuter rail. Streetcars and buses use the street and therefore interact with other uses along the street directly, in contrast to segregated heavier rail systems, which use stations as their point of intersection with the neighbourhood.

Peter Calthorpe, also a New Urbanist, is considered by many to be the originator of the current concept of transit-oriented development. Calthorpe recognizes that the nodal form of TOD he puts forth is not the only possible form, but believes that it is the only one which will work in the contemporary context. He states that the fundamental nodal structure of TOD is a result of the “contemporary bias of retail to develop in distinct ‘packages,’ the spacing requirements of transit stations, and the qualitative need for an identifiable social centre in our neighbourhoods and districts.” This is in “sharp contrast to the linear form [of TOD] which used to dominate the form of grid towns or strip commercial suburbs” (Calthorpe 1993, 42). Jill Grant (2002) suggests that the streetcar suburb is the ideal for many TOD planners, but that land ownership patterns, consumer preferences and rates of urban growth make it difficult to implement today. In spite of his skepticism about new linear forms, Calthorpe does encourage infill and redevelopment “along transit corridors within existing neighbourhoods” (43).

Retail development trends do seem to point towards the ‘packaging’ to which Calthorpe refers (malls, power and lifestyle centres). But the existence of vibrant linear shopping streets (17th, Whyte and Corydon Avenues in Calgary, Edmonton and Winnipeg, respectively, among numerous others) suggests that all is not lost for the linear urban form.

The other reasoning he offers can also be debated. While rail-based modes of rapid transit do require wide spacing of stops for efficient service, on-road transit modes such as streetcars and buses are more flexible. The form of a ‘social centre’ is also debatable, and may not necessarily need to adhere to the nodal concept.

2.3.1.1 The Corridor as the Centre

A 1989 City of Toronto report entitled *Housing on Toronto's Main Streets* suggests that it is Toronto's main streets that serve as the focal point of that city's neighbourhoods, i.e. their true social centres:

"For almost a century, Toronto's main streets have had a remarkably consistent appearance and function. They have always served as the focal points of the residential communities which surround them, as well as the major arteries of the city. They began as and have continued to be places where people live, shop, work, socialize and enjoy recreational activities. In some senses, our main streets have developed as linear community centres" (5).

Toronto, of course, is known for its main streets. The focal points of many of its most distinctive neighbourhoods are main streets: Little Italy on College, Chinatown along Spadina, the Beaches along Queen, Gerrard Street Indian Bazaar and Greektown on the Danforth.

These main streets serve almost innumerable functions for the city and its residents. Under Bloor Street, for example, runs the subway. A large variety of businesses line the street, offering local and international goods. Above most of the stores are offices and apartments. It is a classic pedestrian and transit-oriented urban street, and it offers important opportunities to small-scale entrepreneurs. Its commerce serves the local neighbourhood and the city as a whole. Its incredible variety offers something for everyone, from produce to chic restaurants to live music venues (Neal 2003).

Toronto is not the only context within which corridors might serve as neighbourhood centres, however. Discussing connectivity and movement in Britain's urban villages, David Taylor (2003) suggests that these developments have

"often, and erroneously, been viewed as self-contained developments that have little relationship with the surrounding urban area. Internal patterns of movement should directly connect with adjacent districts and the important role of the urban village in providing a stopping point on a longer journey should not be neglected. This element can directly

influence the overall layout of the neighbourhood, producing an elongated form along principal routes, rather than the traditionally favoured circular growth around a compact centre" (111).

The architect Moshe Safdie (1987, 107) has suggested that many modern planned cities are based on "concepts of discontinuity," whereas in traditional cities, which have evolved over time, "neighbourhood centres are located along an arterial road that extends from one neighbourhood through the next, and on to the city centre". Another British commentator, Hugh Barton (2000), has suggested that "linear concentration" is an approach that could offer all of the benefits of urban villages with the added benefit of a more connective urban tissue linking what might otherwise be isolated urban outposts.

The notion of TOD as a nodal development is slowly being expanded. A growing number of cities in the United States have designated entire corridors as TOD areas including L.A., Houston, Raleigh-Durham, N.C. and Minneapolis, although the development focus is still often on transit station areas (Cervero *et al* 2004). Minneapolis has also followed in the footsteps of Toronto in creating policies to intensify housing along main streets served by transit, although this strategy is not being named TOD explicitly. Even the City of Calgary's prescription that community centres be central and nodal comes with a door that is open, just a crack, to a more linear form: "The community centre concept is primarily a nodal one, although direction is given for the design of such centres in a 'main street configuration' that they should be pedestrian-friendly" (27).

Connectivity must be a key element in any development based around a form of transport, yet there seems to be an assumption that a single mode (the train) will answer all connectivity questions. If the broader context is not considered, and TODs are not integrated with the broader urban fabric, will they be able to live up to their potential?

2.3.1.2 Nodes Are Affected By Their Contexts

Again in Toronto, attempts have been made to create TOD nodes in suburbs to act as secondary growth areas, essentially new downtowns for the suburbs of North York, Scarborough and Mississauga. In his 2001 article "Suburban mixed use centres and urban

dispersion", Pierre Filion investigated these nodes to determine whether they were achieving the goals for which they were planned and developed. Four main characteristics were investigated: level of growth; land use patterns; inner dynamic (internal travel patterns); and modes of transportation access. These suburban mixed use centres were meant to "[intensify] suburban areas and [thereby] reduce their car use and land consumption" (142).

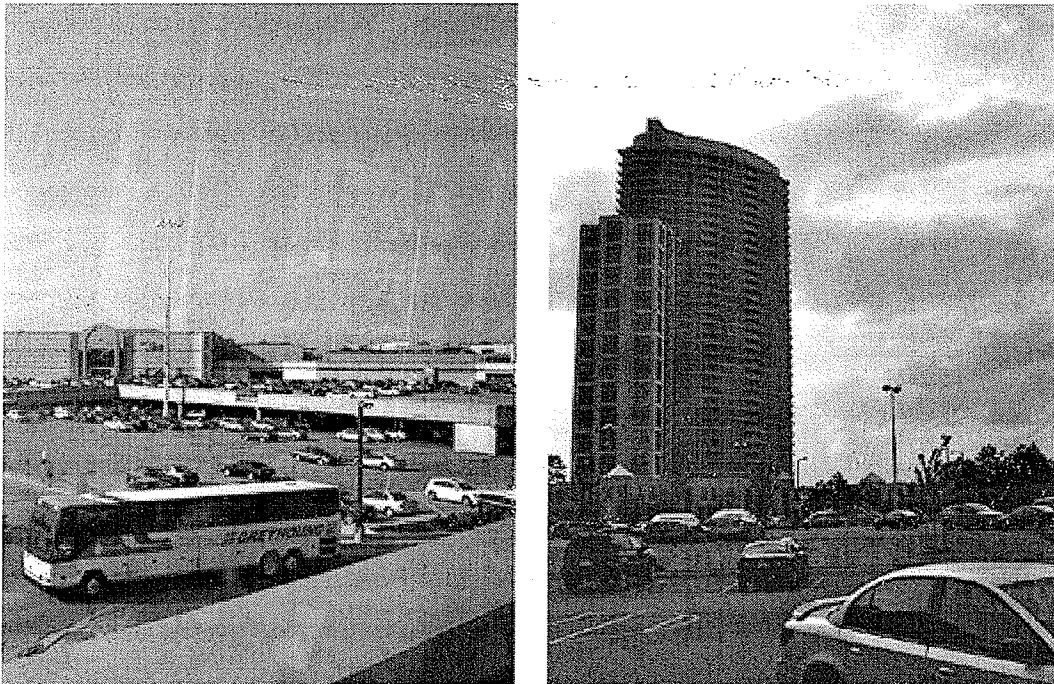
All three suburban centres are relatively compact and are important transit and employment centres within the Toronto region. North York's centre is served by the subway and a bus depot, Scarborough's by LRT and a bus depot, and Mississauga's by a bus depot and close connections to commuter rail service. North York and Scarborough both have levels of transit use well above suburban norms. The form of the North York centre is relatively linear – the redevelopment of a former retail strip along Yonge Street – whereas the other two have developed on undeveloped land around large regional malls.

Under Toronto region guidelines for nodal development, which applied to all of the sites in question, large nodes were to be developed in such a manner and to sufficient densities to permit one third of their employees to live and work within the nodes, and another one third to commute to them by transit, meaning only the remaining one third would access the nodes by automobile.

The numbers do the talking: few residents walk to work in these nodes, and walking modal share for the three centres are not much higher than their suburban regions. In 1999, they were significantly lower than numbers for downtown Toronto, where 36% walked to work versus 3-4% in the three nodes. Transit modal shares for work trips in 1996 were 9%, 15% and 22% for Mississauga, Scarborough and North York, respectively. North York's 22% was respectable, but well below the hoped-for one third, and the other centres did not even approach that goal. In contrast to downtown Toronto's commanding 49% work-trip transit share in 1996, none of these suburban nodes were comparable, suggesting that the attempt to create secondary nodes with downtown-like travel characteristics in the Toronto suburbs has not been entirely successful.

These findings challenge the view that a nodal approach alone can transform the suburban pattern. Rather, these nodes seem to be hamstrung by the fact that, although they may be intended as pedestrian and transit-oriented centres, their locations at the centres of auto-dominated regions limit the potential for freedom from the urban form dictates of the car. It is interesting to note, however, that North York's centre, the only one of the three nodes built on a pre-existing retail strip, and the only one with a linear pattern of development, had the highest levels of transit use.

Figure 2: Scarborough Town Centre: view of the regional mall from an LRT vehicle (left) and parking lots surrounding high-rises (right)



Source: Author

Filion concludes that “more appropriate to an abatement of dispersion would be the creation of corridors concentrating high-density and medium-density residential areas along high-speed, high-frequency transit routes” (156). Where two such corridors meet, mixed use centres could naturally develop that are truly transit focused, being more logical intersections of activity and more connected to a larger urban form of high-intensity corridors.

Once again, Toronto is not the only context within which this idea of nodal isolation is seen as a problem: "A risk of 'self-sufficient' mixed use developments, at neighbourhood or larger scale, is that they can become isolated and the residents socially segregated from the life of the city. Careful design can resolve the problem: transport should integrate the area into the surrounding urban fabric and not segregate it from it" (Shankland Cox 1994, 32). This comment does not seem to apply entirely to the Toronto example, as Toronto's nodes are not isolated islands. Rather, their isolation as relatively pedestrian- and transit-oriented nodes within a sea of auto-centric suburbanism seems to limit their ability to function in the manner in which they were intended. Nevertheless, these comments reinforce the need for connectivity and integration.

2.3.1.3 Streets as Multifunctional Urban Spaces

Although New Urbanism discusses the idea of redesigning streets as places of shared use, where several different modes of transport and multiple activities can take place, TOD thinking seems to look at the multifunctionality of street space on a less regional scale, focused more on getting people to and from the transit station. It seems that the journey is the journey, and being somewhere is being somewhere, but the twain shall never meet. Is it not possible to marry the two, and discover a type of main street which will function well, not only for quick and efficient transport connecting the city, but also as a social "centre", as a place to work or relax and meet friends?

Planning and designing for movement is not just about "making it easy to arrive at the end of the journey; the journey itself should be able to provide opportunities for interest, commerce and human interaction" (Taylor 2003, 104). In the opening chapters of *The Death and Life of Great American Cities*, Jane Jacobs observed that:

"Streets in cities serve many purposes besides carrying vehicles, and city sidewalks – the pedestrian parts of the streets – serve many purposes besides carrying pedestrians. These are bound up with circulation but are not identical with it and in their own right they are at least as basic as circulation to the proper workings of cities" (29).

Arguments for increasing the hospitality of streets towards uses besides vehicular movement can be found throughout planning literature. The City of Calgary directs that streets in new neighbourhoods

“must serve a number of functions: providing transportation for all kinds of users and vehicles, a right-of-way for underground utilities, and public space...[and] will continu[e] to work well for vehicles while making walking, cycling and public transit attractive options for many daily trips, including the journey to work” (51).

Numerous authors have made similar comments (Dittmar & Ohland 2004; Frank *et al* 2003; Duany *et al* 2001; Rogers 1999; Coupland 1997).

Adapting the street to accommodate multiple uses needs to start with a questioning of the functions we want it to perform. Main streets will naturally have greater intensities of use compared to local, especially residential streets, and therefore much different design. Combining the functions of a transportation corridor with local, place-based activities will require careful thought.

Table 1: Defining the role(s) of streets

For every street we need to be asking:

- what job should it be performing;
- who uses it and why;
- what would people like it to be used for;
- how well is it performing its function;
- how can greater priority be given to non-traffic roles;
- could we re-engineer the street to play a different role?

Source: Rogers 1999, 91

But is it not the case that examples already exist in our cities of streets that strike this balance between differing uses? They are quite often our most vibrant and attractive streets. There may also be streets that have untapped potential, requiring only a strengthening of elements to blossom into truly great streets.

2.3.2 *The Role of Mixed Land Uses*

One is hard-pressed to find a writer who does not point to mixed land use as an essential element in creating vibrant and functional transit-oriented developments. Peter Calthorpe placed mixed uses at the centre of the debate by unequivocally declaring in *The Next American Metropolis*: “All TODs must be mixed use and contain a minimum amount of public, core commercial and residential uses” (63). He even went so far as to offer percentage ranges for the amount of each use that would be appropriate for TODs of different scales. He believed that a certain “minimum proportion of uses is required to stimulate pedestrian activity and to provide economic incentives for developing mixed use patterns” (63). Most, if not all, of the definitions of TOD discussed thus far have made some mention of the mixing of uses.

A more development industry-specific definition comes from the Urban Land Institute (Schwanke 2003, 4), which offers three parameters for mixed use developments:

- 3 or more significant revenue-producing uses (such as retail/entertainment, office, residential, hotel and/or civic/cultural/recreation) that in well-planned projects are mutually supporting;
- significant physical and functional integration of project components (and thus a relatively close-knit and intensive use of land), including uninterrupted pedestrian connections;
- and development in accordance with a coherent plan (that frequently stipulates the type and scale of uses, permitted densities and related items).

Peter Calthorpe would perhaps complain that this definition of mixed use is an example of the ‘packaging’ tendency of contemporary land development patterns, more concerned with internal than external connections. Nevertheless, the basic elements are the same, and we can see that a compact, well-connected character is considered essential.

Mixed use can take different forms and scales, generally categorized as horizontal or vertical mix. Horizontal mix involves the placement of different land uses within proximity to one another, but in separate buildings. Vertical mix places different uses in the same building. There are different scales at which mix is pursued as well, generally discussed as either fine- or coarse-grained land use. These are relative terms and can have different meanings depending on the context and the author's viewpoint, ranging from mix within a block to mix within an entire district. In many cases, however, mixed use is discussed without reference to intended form or scale.

Mixed use is a favoured principle of planners in general and some have gone so far as to declare that mixed use has become a "mantra in contemporary planning" (Grant 2002, 71). When we consider that much of the reasoning behind the separating out of land uses was to protect residences from the effects of heavy-polluting industry, and that much of our economy today has shifted to non-polluting business and service industries, little of the original logic of segregating land uses remains (Newman & Kenworthy, 1999; Cervero 1998).

That planners want mix is obvious. What they expect it will offer makes up a sizable list. Whether or not it will deliver what it promises, and what form it should take to deliver that promise, are somewhat less clear.

2.3.2.1 Perceived Benefits

In 1961, Jane Jacobs believed in the need for mixed use at a time when most planners were committed to the strict segregation of uses:

"The district, and indeed as many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must insure the presence of people who go outdoors on different schedules and are in the place for different purposes, but who are able to use many facilities in common" (152).

The benefit of mixed use, as Jane Jacobs saw it, was the enlivening of the street at all times of the day with both residents and workers, offering not only the feel of activity and bustle, but also bringing to the street a wide assortment of people who would use it

for a wide assortment of purposes. This, she believed, would bring to the street an economic and physical vitality and diversity that could not exist in an area that was, for example, entirely commercial, as in such a case the street would only be occupied and businesses patronized at certain times of the day, and by fewer people. Contemporary planners often point to these earlier observations, but the thinking about mixed use has expanded to include other benefits as well, many of which are related to travel.

Great weight is given to the potential impacts of mixed use on transportation systems and infrastructure. It is suggested that because mixed use creates an urban environment active at all hours, it improves the use of urban infrastructure (Grant 2002). One particularly detailed argument for increased resource efficiency suggests that:

“With the more even and fine-grained distribution of uses across the urban landscape, traffic movements will be correspondingly more evenly distributed...Some reduction in the tidal flow of commuters from suburbs to central locations means that transport systems could be designed to accommodate smaller peak flows and be subsequently less under-used during the off-peak periods” (Coupland 1997, 151).

More often, however, mixed use is discussed for its potential to reduce the frequency and length of automobile trips, and to correspondingly increase the frequency of journeys made by other modes: cycling, walking and transit. Land use mix will significantly reduce the number of journeys made by car (Neal 2003). Combined with other factors such as pedestrian-friendly form, mixed use can “reduce the magnitude and length of local nonwork trips, particularly for midday and afternoon trips” (Dittmar & Ohland 2004, 116). A mix of public and private activities located in the community would “reduce the need to drive outside the community for daily needs...[and] provide a greater variety of activities in close proximity, in order to combine trips” (Calgary 2005, 24). Equity of urban movement could also be improved if, by providing housing near commercial and civic activities, planners could reduce the dependence on cars of less mobile and affluent populations such as children and the elderly (Grant 2002).

2.3.2.2 Dissenting Opinions

Not all opinions support the claims made on behalf of mixed use in affecting travel behaviour. How can we be certain that people will make the choice to frequent local shops, to work in their own neighbourhood, or choose local entertainment options, when city-wide mobility is still available to them?

“While it seems obvious that a reduction in movement should result from this type of mixed use spatial planning, there are many problems with the idea...They might be summarized as the contrast between pre-industrial culture where home and work was of necessity in close proximity and a post-industrial society where economies of scale and the comparative advantage of different locations pull apart home, work and leisure” (Coupland 1997, 151).

For work-based travel, neighbourhoods cannot ever be true ‘urban villages’ in that they will always be a part of city-wide and regional employment markets; not everyone will want to, nor will they necessarily be able to, find suitable jobs within their neighbourhood (Williams *et al* 2000). Therefore, mixing uses may have little to no effect on work-related travel behaviour.

There is evidence too that mixed use is not always successful in the marketplace. In her 2002 article “Mixed use in theory and practice”, Jill Grant found that market forces and preferences beyond their control could stymie suburban developers that attempt to incorporate mixed use into their projects. McKenzie Towne on the southeast edge of Calgary, one of the first and largest New Urbanist developments in Canada, has struggled with this. Carma, the project developer, intended to pursue mixed use in the form of neighbourhood commercial on the ‘village square’, and apartments over stores on the main street-style town centre. Unfortunately, things have not worked out as planned.

Neighbourhood commercial space on the ‘village squares’ sits largely empty, in spite of persistent attempts on the part of the developer to try to fill the spaces. A private school was slated to move into one of them, but backed out over opposition from residents. In the town centre, Carma chose not to construct apartments over stores when they found that market rents for such housing would not cover the cost of construction.

Plans to construct garage suites in the residential areas were not pursued for the same reason. The commercial structures were originally intended for sale, but Carma have been forced to lease them instead, due to a lack of interested buyers, and vacancy rates have been high. Although light rail is planned to reach the development, construction of the line is years in the future, and the length of the current bus route to downtown is a source of complaint for residents.

The reasons for this failure of the mixed use concept may be multiple. Firstly, Grant points out, the commercial element was introduced early in the development of McKenzie Towne, perhaps at a point when there was not enough resident population to support the mix of uses that was being pursued. Because transit service within the development and to major destinations is neither frequent nor quick, expectations that residents would leave their cars at home may have been too ambitious.

But the challenge of introducing mixed use to new suburban areas may be more than just transit and timing. In interviews with planners, Grant found that some were skeptical of the viability of mixed use for new suburban areas, believing that "people make conscious choices in buying homes: Suburbanites want space, a rural feel, and separation from other uses". In this context, Grant concludes, "mixed uses are best placed in the urban core" (78).

Where mixed use is concerned, it is not simply a matter of 'build it and they will come', and no doubt there are challenges to implementation. However, an essential point that critics tend not to mention is the importance of choice. Residents of most new developments today do not have the option of choosing to shop within their neighbourhoods, nor do they have the option of choosing to look for employment within their neighbourhoods; the option does not even exist. Likewise, with travel behaviour, making the choice to walk or bike to local amenities is made unlikely due to the fact that neighbourhoods are not designed or organized to make this choice attractive.

If there ever comes a time when cars fall out of favour as a primary mode of transportation, due to unreasonably high gasoline costs, or any other reason, then our current pattern of development would not adapt itself well. Paul Bedford, the former head of planning for the City of Toronto, once declared that the central goal to all of his efforts in that city was to make it possible over time to "lead a full life from birth to death

without a car and not feel deprived as a result” (Gratz 2003, 29). If it is this choice and potential for adaptability that planners are after, then mixed use has merit in spite of the challenges.

2.3.2.3 Vertical or Horizontal, Fine or Coarse?

The desire of planners for mixed use begs the question: how mixed should mixed use be? What is the scale and form upon which we place the label ‘mixed’? There are few concrete prescriptions for this.

Vertical and horizontal mix both have something to be said for them. Vertical mix seems to hold greater potential for street vitality and reduction of car use by means of increased proximity, but is also more complex in terms of the balance to achieve between the demands of different uses, and is a less familiar building form in the contemporary real estate market; “vertical mixed use buildings do contribute to a healthy pedestrian environment, but are much more difficult to implement” and, while they may be useful, they are not a “necessary condition for mixed use” (Calthorpe 1993, 63). Table 2 highlights some of the benefits and drawbacks to pursuing mixed use within buildings.

Horizontal mix will have few benefits if it is pursued on a scale that is too large. Mix pursued over the scale of several neighbourhoods would be little different than standard planning practices. In general, the smaller the scale on which horizontal mix is pursued, the greater the likelihood of achieving the expected benefits of mixed use. Pursued on a very small scale, there would likely be little functional difference between horizontal and vertical mix.

“It is not only the size and scale of the block that are important. The extent to which it can be subdivided vertically for different uses is also significant. Large blocks may provide an acceptable urban environment if they can accommodate a series of smaller-scale retail and commercial uses at ground level. Conversely, mono-functional buildings or blocks may still provide an acceptable, lively environment provided that they are small enough to offer a variety of attractions through their collective diversity” (Coupland 1997, 160).

Regardless of their preferred form, all advocates of mixed use call for a finer grain of land use. In order to allow those who take transit to easily connect to multiple destinations by foot once they step off the train or bus, Robert Cervero (1998) argues for a “fine-grained mixing of shops, offices and civic places” (76); other authors present similar arguments (Frank *et al* 2003; Grant 2002; Filion 2001).

Table 2: Why vertical mixed uses?

ADVANTAGES	DISADVANTAGES
<i>Definite</i>	<i>Definite</i>
Attractiveness and vitality – diversity; up to 24 hour city	Harder to dispose of property asset quickly
Use unwanted or obsolete property, including [historical] buildings	Requires active management of property
Range of uses means greater likelihood of some parts leasing	Therefore harder to raise financing and may put some possible tenants off
<i>Possible</i>	<i>Possible</i>
Reduction in travel (shorter trips, more multi-function) so reduced emissions; sustainability	Lower rents
Reduction in crime; more activity; greater uses; observation of street	Problems of separate access needed for each use
	Conflict between activities; noise, traffic, etc. (e.g. housing over wine bar)

Source: Coupland 1997, 4

Because the right mix is dependent upon context and the needs and patterns of residents and workers, there is no such thing as a perfect mix. Although Peter Calthorpe (1993) went so far as to set out rough percentages for the land use mix in TOD nodes, he recognized that the densities and mix of uses, “though controlled by certain minimums, is determined by the specifics of each site and economy” (42). This recognition of the impossibility of a land use formula is echoed by other literature (Murray 2004; ODPM 2001).

2.3.3 *Effect of the Built Form*

Discussing mixed use as an isolated concept was difficult in the preceding section, the reason being that mixed use is rarely discussed without reference to the other elements of the built form. Jill Grant (2002) has identified three different conceptual components of mixed use as it is discussed in planning literature: increasing the intensity of land uses; increasing the diversity of uses; and integrating segregated uses. Similarly, Michael Bernick and Robert Cervero (1997) present the “3-Ds of what [they] believe make for successful transit villages: Density, Diversity, and Design” (73). Lawrence Frank *et al* (2003) identify the same elements: density, mixed land use and good urban design, as being the three most important elements of the built environment to encourage travel by active modes such as walking and cycling. These three elements are quite closely related and, some might argue, inseparable.

2.3.3.1 Filtering Out the Elements?

Doing any sort of research on the built environment can be difficult, owing to the complexity of the environment involved. Identifying the effects of particular aspects of the built environment on travel behaviour is particularly difficult; those features of the built environment that create “similar types of behaviour are most often found bundled together into the same subdivisions, neighbourhoods and districts” (Frank *et al* 2003, 106). For instance, high levels of density, mixed uses and traditional design characteristics such as gridded, tree-lined streets, each of which are believed to contribute to increased levels of walking, tend to be found in the same neighbourhoods. So choosing one element and investigating its effects on walking behaviour without the influence of the others is a challenging proposition. In addition to these intertwined elements, the effects of the built environment also have to be disentangled from the effects of demographic and economic characteristics.

Beyond the difficulty of separating out the effects of different elements on behaviour, isolating out the elements bears little relation to actual environments in which built characteristics complement one another. Increased density is often implied in mixed use. The New Urbanists, for example, in calling for housing over shops in town centres, are suggesting the placement of residents where before there were none. While mixing uses make different elements of the city more accessible by foot, transit or bike, an increase in the number of people in an area increases the bustle of the street, the number of potential patrons for local shops and services, and the number of potential transit users as well. Mixed uses and issues of scale and grain “cannot be divorced from the questions of density. The intensity of activity in streets is clearly dependent on the numbers of user as well as the mix of uses” (Coupland 1997, 161). Robert Cervero tells us that the lack of evidence of the impact of urban design, in and of itself, on travel behaviour is due to the fact that “design treatments must accompany compact, mixed use development for their benefits to be meaningfully felt” (1998, 79). It appears to be a case of the whole being greater than the sum of its parts.

2.3.3.2 Physical Activity for All

Physical activity can be pursued for different reasons and in many different ways. It can be recreational or utilitarian, of moderate or vigorous intensity. Any and all of these types of physical activity can be beneficial to human health. The distinction between them comes when we consider what types of physical activity are able to be pursued by the largest number of people, and what types are also most likely to be pursued by all people, as opposed to a dedicated few.

Frank *et al* make the case that, all other things being equal, activities that have a “lower exertion threshold, require little equipment or financial resources, do not take much time from other activities, and have some practical purpose” have distinct advantages over other types (2003, 55). They argue that walking and bicycling are the most advantaged activities in these respects. Walking, in particular, is useful for the purposes of this practicum, as it can work alone as a mode of transportation, albeit over

relatively short distances, and is also the most common means by which people access public transportation.

2.3.3.3 Needs of Pedestrians, Cyclists and Transit Users

Walkers, cyclists and transit users all use their own energy to move around in the out-of-doors, and are therefore sensitive to the detailed conditions of the physical environment in a way that motorists are not, speeding by in their glassed-in compartments.

In her 2005 paper "To walk or not to walk", Mariela Alfonzo presented the product of her research, a hierarchy of walking needs. Her five levels, starting with the most basic need, were 'feasibility' (satisfied or limited by: mobility, time and other responsibilities), 'accessibility' (quantity, quality, variety and proximity of activities present), 'safety' (from both other persons and traffic), 'comfort' (level of ease, convenience and contentment), and 'pleasurability' (diversity, complexity, liveliness and aesthetic appeal). The decision to walk is based upon a conscious or unconscious contemplation of some or all of these different considerations, some relating to objective physical considerations, such as the directness of the walking route to a destination, and some relating to more subjective considerations, such as the visual interest along that route. Although not every level in the hierarchy needs to be satisfied to result in a walking trip, Alfonzo concludes that if the basic condition of feasibility is not met, the walking trip will be replaced by a trip by some other mode, or not taken at all.

This hierarchy only identifies the decision making process, not the actual decision for any particular walking environment. But the implications as they relate to the physical environment are quite clear. People, if they are to choose to walk, need at the very least to be physically able and have the time to make the trip, so environments that make walking trips as short and quick as possible will encourage greater walking. Accessibility will be satisfied by maximizing the number of local walking destinations. Safety will be aided by buffering pedestrians from or reducing traffic, and by keeping the street populated to increase the feeling of safety from crime. Comfort and pleasurability will be satisfied by measures that improve the physical appearance of the walking environment and make it

easier or more comfortable to walk around in. Designers are not oblivious to these preferences: "The obvious way to encourage walking is to win back space for people on foot, and to encourage street facilities and functions which make it attractive to walk, with well-designed seating areas, public art, planting and paving, and less traffic" (Rogers 1999, 95).

A similar hierarchy could likely be identified for decisions to take or not to take cycling trips. The conditions that would need to be satisfied, however, would be somewhat different for cyclists. Although utilitarian cycling and walking trips (by this is meant trips to work or the store rather than for recreation alone) are both encouraged by short distances between destinations, their needs diverge from there. Pedestrians require good sidewalks and crosswalks, while bicyclists need either specialized bike paths, dedicated on-street bike lanes, or streets relatively free from other traffic on which to ride. Pedestrian safety is aided by on-street parking, as it creates a buffer from busy traffic, whereas cyclists must be wary of opening doors as they pass. Pedestrians enjoy visual variety along their route, store displays or interesting building facades, whereas cyclists are usually focusing on traffic and moving fast enough that such details are not as relevant. While the presence of other bikes or cars is usually a source of frustration to drivers or cyclists, the presence of other pedestrians is usually a positive addition to the more social experience of walking (Frank *et al* 2003, 105).

Cyclists prefer long uninterrupted stretches of road or pathway for a reason shared by travelers of no other mode: momentum. Propelled by their own muscles and exerting greater effort than the pedestrian or pedal-pressing driver,

"the quest to preserve momentum in traffic is one of the main reasons cyclists roll through stop signs and red lights, generally make a nuisance of themselves on the roadways, and get themselves hauled off to...emergency trauma centres...They're impressed with not having to crank back up to speed" (Hurst 2004, 91).

The tendency of some cyclists to take risks in traffic should not necessarily be catered to, but it illustrates the fact that different modes make divergent demands on the built environment.

Since most transit journeys start and end on foot, the needs of transit users are very similar to pedestrian needs: “by default, transit-friendly environments must also be pedestrian-friendly” (Cervero & Seskin 1995, 35). However, there are subtle differences. With respect to urban form configurations, transit use depends primarily on local densities, and secondarily on the degree of land-use mixing, whereas walking depends as much on the degree of land-use mixing as on local densities (Ewing and Cervero, 2001). This likely stems from the fact that, although transit trips also involve a walking component, proximity is somewhat less important owing to the increased mobility that transit offers.

Transit can also be made quite compatible with cycling, the main concern being where to store the bike while on the bus or train. The huge bicycle storage areas around Dutch railway stations are an example of this, and also the specialized bike racks which can be seen on the front of some buses in Winnipeg and other cities.

2.3.3.4 Evidence - Mixed Land Use

The potential of mixed land use was discussed in the previous section, and some of the challenges of implementation were brought up. But what evidence is there that it can achieve the hoped for results? In contrast to the mass of opinions in favour of mixed uses, there is as yet a much smaller mass of evidence to support those views.

A study by Bernick and Cervero found, interestingly, that in 11 large US cities, having retail shops within 300 feet of residences contributed greatly towards walking or taking public transit to work; being able to shop and run errands while going to or from work made the greater mobility of a car less necessary (1997, 88-89). In a study of neighbourhoods in Cardiff, UK, Van and Senior found that mixed land uses encouraged walking and cycling, deterred car use, and also increased the frequency of light food shopping trips and trips to eat out. It did not find, however, that land use mix affected heavy food shopping trips, and was inconclusive with regards to commuting behaviour (in Williams *et al* 2000, 139-148).

Attempting to verify the claims of New Urbanists regarding mixed use and walking behaviour, Hollie Lund found that there was “some credibility” to the claim that,

when combined with pedestrian-friendly streetscapes, “locating everyday amenities such as parks and retail shops within a neighbourhood can increase pedestrian travel” (2003, 428).

Frank and Pivo found that a relationship between land use mix and increased use of non-auto transport modes did exist, but that it was best measured at very localized scales (for which data is not routinely gathered, as opposed to larger-scale patterns collected as part of censuses). It also suggested that a “comprehensive approach to policy development would be most successful in reducing dependence on [single occupancy vehicles]” (1995, 52). In other words, mixed use helps, but is not enough on its own.

2.3.3.5 Evidence - Density

If evidence is somewhat unclear for mixed uses, evidence for the effects of density is more certain. Although critics point out that they have not demonstrated a *causal* relationship between density and automobile use, in their study of cities around the world Newman and Kenworthy (1999) have demonstrated that there is a correlation between high levels of urban density and reduced transport energy consumption, attributable to decreased automobile use. Banister (1997) found complementary results, identifying a four-fold difference in public transit trips and a two-fold difference in walking trips between very low density and high density areas. Holtzclaw (1994) came to multiple conclusions in a study of California neighbourhoods: that auto ownership decreases as density increases; that increased density correlates with better transit service, more neighborhood shopping and greater pedestrian friendliness; and that vehicle miles travelled per household increase as household densities, along with other indices such as neighbourhood walkability, shopping opportunities and transit service, decrease.

Cervero and Seskin (1995) suggest, “research consistently shows density to be one of the most important determinants of transit modal choice” (25). Later, in *The Transit Metropolis*, Cervero cited studies that suggest that every “10 percent increase in population and employment densities yields...between a 5 and 8 percent increase in transit ridership” and that transit demand rises “most sharply when going from very low

to modest densities-say, from 4 dwelling units per net residential acre to 15 units per acre” (1998, 72).

2.3.3.6 Evidence - Supportive Urban Design

A public health study carried out in Canadian cities attempted to assess the relationship between urban design variables and walking to work (Craig *et al* 2002). Neighbourhoods were evaluated on measures that included: ‘social dynamics’ (potential to see people sitting, standing and moving about) ‘complexity of stimulus’ (amount and variety of visual and auditory stimuli), and ‘visual interest’ (type and variety of buildings, human scale, etc.). More people were found to walk to work in neighbourhoods that had higher scores based on these different measures. The completeness of “pedestrian facilities (block size and sidewalk length in particular) and route directness provided for pedestrian traffic, appear[ed] to significantly affect the number of pedestrian trips” in a study of 12 Seattle neighbourhoods (Moudon *et al* 1997, 54).

A study by Robert Cervero compared San Francisco neighbourhoods which were similar in resident incomes, location, and topography and had similar road and transit services, but differed in their built environments. Communities with transit-supportive urban design were found to generate 70% more transit trips and 120% more pedestrian/bicycle trips than nearby automobile-oriented communities (Cervero 1998, 79), while studies in the Netherlands and Germany in cities that created dedicated cycling infrastructure and instituted policies to restrict or discourage car use showed significant gains in cycling mode share (Frank *et al* 2003, 134).

2.3.4 Lessons on Urban Form

“Real self-sufficiency is not about working from home and living above a grocer’s shop; it is about making places that work within and respond to a larger urban context” (Murray 2004, 192).

At the beginning of this section, several questions were asked. Shapes were a theme: shapes of TOD, forms of mixed land use and characteristics of the built environment.

The standard nodal conceptualization of TOD has a great deal of merit, but it doesn't always live up to the hopes that are pinned to it. Nor does it necessarily work well with every kind of transit system. More modest, classic models do exist. The overwhelming mass of TOD literature still focuses on the node, and generally deals with its limitations by stressing the need for better implementation. No doubt this could help, but the idea of TOD is also being expanded.

Peter Calthorpe defined the TOD concept by putting together the "notion of the pedestrian pocket with the idea of planning development around transit stations" (Dittmar & Ohland 2004, 7); why not a pedestrian 'seam'? The nodal concept focuses on creating new neighbourhoods, or on adapting old neighbourhoods to a new focal point. Corridors, however, already exist in every city and are often already centres of commerce. This is perhaps a softer way of adapting neighbourhoods to transit orientation. Centres need not be circular to serve their function, as the example of Toronto's main streets attests.

Design of streets for multi-functionality is increasingly being demanded as the problems of transportation systems developed around a single mode, the car, are becoming more obvious. Winning back space in the street, not only for movement by other travel modes, but also as places for socialization and interaction is beginning to be a priority.

Mixed land use was shown to be somewhat nebulous in its definition. Its presumed benefits, too, are wide-ranging, and perhaps stretch beyond its true potential. But those quibbles aside, there is broad consensus on the form mixed use should take. Vertical and horizontal mixed uses both have their place, and should really come down to a question of developer preference, as the most important variable is the question of grain.

Coarse grain is panned, while fine grain is cheered for its virtue of bringing multiple uses into close proximity with one another, the condition which does the most to reduce the need for the automobile. Commentators in general refused to answer the

question of 'how mixed is mix?' stating that there is no formula and that it depends on local conditions and demands. But for effects on travel behaviour, small is beautiful.

Leapfrog mixed use development such as McKenzie Towne, isolated by distance and not well served by transit, may not work as expected. Jill Grant (2002) has suggested that mixed land use may only be appropriate in city centres. Perhaps it is simply that it needs to be built contiguously to succeed, adding credence to the concept of corridors rather than isolated nodes. A combination of corridors and nodes might be particularly effective, nodes springing up at the intersections of major transportation corridors.

It is difficult to isolate the effects of different elements of the built form on travel, a challenge for researchers. But while it would be helpful for research, the fact that so many of these urban elements are complementary to and dependent upon each other means that there is no need to isolate them out in the real world. Increased land use diversity complements higher density, which then demands better urban design to match the needs of greater numbers of pedestrians, cyclists and transit users.

Pedestrians, transit users and, in particular, cyclists do not each require the exact same types of environments. Cyclists, moving at a much faster pace and under their own power, have less use for detailed aesthetic treatments of building facades, for instance, which would be an attraction to the passing pedestrian. But their shared need for relatively short distances to destinations and direct routes, among other things, show that they can be made to work together, if careful attention is given to their integration.

Ultimately, the physical environment is not the only factor in reducing automobile use and increasing travel by other modes. Societal attitudes, priorities and the financial cost of travel may all have greater impact on the ways we move about in and interact with our urban environments. But the shaping of urban environments is a primary tool of the planner, and should be used to best advantage.

There are numerous examples of cities around the world that have successfully applied the principles of sustainable transportation and urban form discussed in this chapter. The following chapter will describe some of those success stories, as well as discuss what some Canadian cities are doing to pursue similar goals.

3 MINOR PRECEDENTS – INTERNATIONAL AND CANADIAN EXAMPLES

The challenges of sustainability are complex, and tackling them requires that we not stop at municipal boundaries. But being the level of government that most visibly affects our everyday lives, it is at the municipal level that much work needs to be done; different local policies and conditions can have a significant impact on how we move ourselves every day. Globally, it is estimated that 21% of CO₂ emissions are produced by activities related to transport, much of it local. In North American cities, estimates range from 25% in San Francisco to 31% in Ottawa and 37% in Portland, Oregon (Dauncey and Mazza 2001, 108). These variations tell us this: that local conditions and approaches matter.

The importance of municipal approaches has been an assumption of this research so far, but it bears pointing out now to frame the investigations of this chapter: if the local level is the level at which we are hoping to enact change, then how might it be done? Are there cities which have desired more sustainable practices, for transportation systems in particular, and tried to make it happen? How have they approached it, and with how much success?

The cities chosen for investigation are varied in size, in politics and in their approaches to sustainable transportation policy. Internationally, Groningen, Netherlands, Freiburg, Germany and Curitiba, Brazil are cities which have been successful at shifting transportation towards walking, cycling, transit, or a combination of all three. In the Canadian context, Hamilton, Edmonton and Vancouver have taken various approaches to transport sustainability, are at various stages of implementing their policies, and represent Canadian cities of varying sizes and economic strength.

3.1 INTERNATIONAL EXAMPLES

3.1.1 *Groningen*

Groningen is a city of about 180,000 in the north of the Netherlands, with a regional population of about 250,000. It is a major shopping and business centre for the north of the country, providing about 100,000 jobs. Approximately half of these workers commute from outside the city.

Transportation trends in European cities have been towards rapidly increasing car use since the 1960s. Many urban areas have experienced steady job growth while simultaneously experiencing a shifting of heavy industry, shopping and residents to peripheral areas. This in effect has led to “an imbalance of the ratio of population and workplaces, which caused rapidly increasing volumes of commuter travel” (Bratzel 1999, 182).

In the 1960s, Groningen was a city welcoming such trends. At that time, Groningen put in place car-oriented transportation and land use policies, aimed at increasing automobile capacity in the inner city and deconcentrating urban functions through the development of new, lower density areas of segregated uses. In the late 1960s, however, local voices began agitating against these auto-oriented policies, and in 1972, a city council was elected which was overwhelmingly in favour of an environmentally-focused transport policy. They put in place policies which have continued and expanded to this day (Bratzel 1999).

The municipal governments of the 1970s decided to focus on restoring and expanding the original small-scale inner city structure of Groningen, with an emphasis on mixing uses. Planning policy was based on the Compact City model, putting residential, working and shopping locations in close proximity to one another. An integrated approach was pursued in order to implement measures in various areas of policy in a coordinated fashion, to ensure that different decisions would work in concert with each other (Bloemkolk and Huis in't Veld 2001).

For new development, Groningen requires that workplaces be situated in locations which are “readily accessible by public transport and bicycle. Only firms that are reliant on good access by truck, or are less labour-intensive are allowed to locate elsewhere. This location approach has to pay attention to the fact that the new sites should be easily accessible by bike or public transport, and that [automobile parking] is limited” (ibid.).

In addition to integrating land use and transportation planning, Groningen has also attempted to restrict automobile use and put significant investment into the expansion of cycling and pedestrian infrastructure, developing cycle networks, building bridges for cyclist and pedestrian use, narrowing roads and restricting speed limits. Specific targets for transportation policy were set out, limiting traffic while encouraging pedestrian, cycling and transit use, which enabled municipal officials to determine how well policies were working (ibid.).

The results have been positive: as of the late 1990s, 70% of all trips were made by cycling, walking or public transit, with a commanding 48% of trips being made by bicycle. There has been a local shift in thinking about issues such as traffic as well: business leaders, who in the 1970s fought the pedestrianization of the city centre, concerned that a lack of automobile access would hurt business, fought for an expansion of that pedestrianized zone in the late 1980s (Bratzel 1999).

3.1.2 *Freiburg*

Very similar in size to Groningen, Freiburg is a city of 215,000, the centre of a region of approximately 300,000 in southwestern Germany, near the border with Switzerland. It is a research and industrial centre providing over 100,000 jobs. Politically, Freiburg is known within Germany as a stronghold of the Green Party, and environmental issues figure heavily in local politics.

However, the root of Freiburg transportation policy is not purely environmental. In the early 1970s, public desire to preserve the historic city centre prompted a shift in transportation policy away from private automobiles, the use of which was putting pressure on the medieval urban form, towards public transit. The municipal government began restricting traffic into the inner city in 1973, rebuilding the main shopping streets

as a large pedestrianized zone. Public transit was allowed into the centre, but cars were redirected to a ring road.

At this time there was also a shift towards integrated transportation and land use planning. Regulations have “strictly limited the area of land available for industrial or property development in favour of maintaining a dense and compact land use pattern” (Fitzroy & Smith 1998, 171). The preservation of existing development and the maintenance of a high quality of life, which cars were felt to threaten, prompted the city to pursue aggressive traffic displacement approaches (funneling traffic to major arteries, restricting parking, excluding cars from the city centre) and put resources into the construction of alternative transportation infrastructure. Since the introduction of the Generalverkehrsplan in 1979, “all means of transport have been regarded as equal parties in traffic”. Investments have been made in the extension of the tram network, the backbone of the public transit system, and cross-city cycling routes, which now stretch to 150 km. A subsidized regional transit pass was also introduced in 1984 (Kretschmer 2001).

Transit investments have been made in areas where the city wishes to direct growth, with the hope that excellent pre-existing transit service will allow new residents to give up or avoid purchasing a car. When the Rieselfeld district tramline was opened in 1997, only 1,100 people were living in the district, whereas by 2002, there were nearly 12,000 people living there, and the tramline offered service every 2 to 3 minutes at peak periods (Kretschmer 2001). New neighbourhoods have also been developed with sustainable transportation principles in mind, and innovative approaches are experimented with. Model City District Vauban, which should be fully built-out in 2006, was designed as a car-free neighbourhood for 5,000 people offering 600 jobs, with a tramline and cycling connections to the city centre. Approximately 40% of Vauban residents have agreed to live without a car, but have access to a carsharing program, while the rest park their cars at the edge of the development in a municipally-operated, condominium-style carpark (Forum Vauban 2001).

Results of Freiburg’s transportation planning over the past 30 years reflect the focus on public transit: between 1983 and 1995, ridership on Freiburg’s public transit system more than doubled, even while the number of private vehicles in the city rose and

the population stayed relatively constant. Non-automobile modal share was a combined 58% in 1993, in a country in which the automobile's modal share usually tops 50% (Bratzel 1999).

3.1.3 Curitiba

The capital of the southwest Brazilian state of Parana, Curitiba is a major metropolis, with approximately 1.8 million people, and another 1.4 million in the regional area. Curitiba is known around the world as a model for public transit, and is also often pointed to as a model for environmental practices. Curitiba is a rich city by Brazilian standards, having "among the highest household incomes and the second-highest automobile ownership rate in Brazil" (APEIS 2002, 4).

The first municipal plan was enacted in 1934, and assumed that automobiles would be the way of the future. It proposed huge investments in road infrastructure and the destruction of much of the old city centre to accommodate growth in car use. But a ballooning population, increasing by more than 7% a year in the 1950s and more than 5% a year in the 1960s, convinced municipal administrators that keeping up with the needs of an automobile-based transportation system would be destructive and incredibly expensive. Following an open competition for proposals, a new Curitiba master plan was approved in 1966, aimed at "providing better conditions for integrated and harmonious development and well-being for the community" (IPPUC website). The Curitiba Urban Research and Planning Institute (IPPUC) was created that year, first conceived as a consultative department to the mayor's office, but then as a plan implementation organization.

A central tenet of the plan was that transportation would be focused on public transit, with radial axes leading to the city centre. Throughout the 1970s, the rapid transit system was expanded and refined, making use of existing infrastructure by giving over the use of existing major streets to transit and restricting through traffic to a handful of 'fast-traffic' streets into and out of the centre. Cross-city routes were also created to accommodate travel not intended for the centre. Refinements continued in the 1980s and 90s, with a new single fare being applied across the region, biarticulated buses carrying

up to 300 people, and specialized loading platforms at stations. In the 1990s, 120 km of bike paths were developed to encourage cycling as well (ibid.).

While these transportation improvements were being made, land use planning was reoriented towards the identified transportation axes. A combination of development restrictions in peripheral areas and development incentives in the form of high density, mixed use zoning along transportation corridors encouraged development in the right places to support the transit network. Allowable densities are tied directly to the public transit services available in the area in a 'wedding cake' pattern, with allowed densities stepping down as you move away from the transit corridor (Cervero 1998). Curitiba's planners "do not view streets only as paved surfaces but as elements in a larger network and hierarchy of roads; a building is not an isolated box but a traffic/public transport-generating element in a larger pattern of settlement" (Rabinovitch 1995, 15).

The results of this integrated approach in Curitiba have been incredible ridership numbers for public transit: in 1974, public transit accounted for only 8% of trips in Curitiba; in 1992, it had grown to 64% (Rabinovitch 1995, 36). The transit system has greatly benefited residents, who spend only 10% of their income on transportation, well below the Brazilian average of 20% (Cervero 1998, 292).

There are criticisms of Curitiba planning, however. Between 1964 and 1985, Brazil was governed by a national military regime, and for much of this period, Curitiba mayors were appointed rather than elected. The Curitiba master plan of 1966, which is largely responsible for the urban form Curitiba has today, was drawn up without significant public involvement. Likewise, the IPPUC has been criticized as being an unaccountable body for much of its history. As such, until recently, decision-making in Curitiba has been very centralized and not necessarily responsive to public sentiment; the planning decisions responsible for the city's international fame unfortunately appear undemocratic (Irazabal 2005).

Curitiba is undoubtedly a success story in the integration of land use and transportation planning, and encouraging to supporters of public transit. The political environment in which Curitiba's direction was changed, however, leaves one wondering whether the drastic changes in planning policy would have occurred had the city been more open and democratic.

3.2 CANADIAN EXAMPLES

3.2.1 *Hamilton*

Hamilton, Ontario is a medium-sized Canadian city, with a population in 2001 of 503,000, with some 200,000 more in the surrounding region. A centre for heavy industry, Hamilton suffered economically in the shift away from heavy industry in the 1980s and 1990s as major employers such as Dofasco and Stelco struggled. Heavy industry remains important to the local economy, but continues to shrink as a source of employment. Future employment growth is greatly dependent upon successful diversification of the economy, an uncertain scenario. Medium projections for population growth in Hamilton suggest slow but steady growth to 622,000 by 2031, some of which is expected to come from overspill growth from the Greater Toronto Area. These projections are not dissimilar to Winnipeg's projected rate of growth, expected to grow from 650,000 today to approximately 735,000 by 2017 (Centre for Spatial Economics 2002; MBS 2006). The Ontario provincial government, which has shown significant interest in growth issues in the past few years, is prompting a rethink of how Hamilton does its planning, as is the City's desire to remain competitive economically with other Ontario city-regions.

In 1992, the City of Hamilton published a long-term sustainability plan entitled *Vision 2020*, which was readopted in 2003. Among the plan's action categories were 'Changing Our Mode of Transportation', which endorsed a significant increase in the use of alternative modes and strategies to support them, and 'Land Use in the Urban Area', which advocated a more compact development approach with emphasis on residential growth in the downtown. The Annual Sustainability Indicators Report for 2004 identified two indicators for the plan's transportation goals (transit ridership per capita and cars owned per capita) and one indicator for land use goals (number of permits issued for new downtown residential units), but unfortunately transit ridership per capita had decreased every year except one since 1993, cars owned per capita had increased 25% since 1993, and downtown permits dropped off precipitously in 2003, while there were no measures for land use in Hamilton as a whole (City of Hamilton 2004). It is apparent

that this sustainability plan, though well intentioned, has had little positive impact on transportation and land use patterns in Hamilton.

More recently, Hamilton has been developing the Growth Related Integrated Development Strategy (GRIDS), an integrated process for long-term planning. This strategy combines land use, transportation and other infrastructure planning into one project, evaluating different growth and investment options using a Triple Bottom Line approach that attempts to balance social, economic and environmental considerations. The strategy is being used in the development of a new transportation master plan, currently under way, and a new *Official Plan*, which will follow. Policy papers developed for the transportation master plan have recommended such measures as the creation of an urban growth boundary, the encouragement of mixed use development in nodes and along corridors which would support rapid transit service, a change in urban design guidelines to create an urban realm at the level of buildings, blocks and streets that is supportive of pedestrian behaviour and other alternative transportation options, and the development of useful networks for pedestrians and cyclists such as cross-city trail systems (City of Hamilton GRIDS).

If the poor showing in its own sustainability indicators wasn't enough to spur the shift towards GRIDS, then it may have been firm direction from Queen's Park that did the trick. Dalton McGuinty's Liberal government has been very interested in urban affairs, and, most recently, the *Greenbelt Plan* and the policy paper *Places to Grow: Growth Plan for the Greater Golden Horseshoe* (2006) have clearly laid out the government's position. In order to prohibit urban development in agricultural and environmentally sensitive areas, the *Greenbelt Plan* came into effect in 2005, protecting some 7,300 square kilometers stretching from Niagara in the south, around the southwest corner of Lake Ontario and as far north and east as Peterborough (Province of Ontario Greenbelt). Surrounding the city, this greenbelt allows room for further growth, but puts finite limits on the physical expansion of Hamilton. *Places to Grow* envisions "increasing intensification of the existing built-up area, with a focus on urban growth centres, intensification corridors, major transit station areas, brownfield sites and greyfields" (Province of Ontario, 12). It also directs that cities will attempt to "reduce their dependence on automobiles through the development of mixed use, transit supportive,

pedestrian-friendly urban environments" (14) and that "public transit will be the first priority for transportation infrastructure planning" (25). This plan will be discussed in greater depth with regard to Toronto in Chapter 4, but its provisions apply equally to Hamilton.

Hamilton has a relatively long-standing interest in sustainability issues, though it appears there has been little success with regards to land use and transportation. Recent changes in planning methods, however, along with strong direction from the provincial government, indicate that the city is moving towards the creation of a more sustainable urban form and transportation system.

3.2.2 *Edmonton*

Another medium-sized Canadian city, Edmonton's current population is 720,000, with an additional 300,000 in the surrounding region. Growth projections based on 2003 data foresaw growth to 876,000 by 2030. Spikes in oil prices have had explosive effects on the Edmonton economy in the past few years, however, both through major oil industry investments in northern Alberta, for which Edmonton is the primary service and supply centre, and redistributive effects from the cash-rich provincial government. Should these economic trends continue, a higher projection made by the same report to 976,000 by 2030 seems quite possible (City of Edmonton 2005). The city has shown a shift in policy thinking over the past several years towards more sustainable land use and transportation planning practices.

Cars are the first choice for most in Edmonton, with sustainable modes accounting for only 22% of weekday trips (City of Edmonton 2006, 22). Land use and transportation planning are not terribly well integrated. The *Transportation Master Plan* (1999) makes only passing reference to land use issues, while *Plan Edmonton* (1998) makes no identifiable attempt to connect land use and transportation goals. Planning for a major greyfield redevelopment project in south Edmonton in 2004-2005 revealed the fact that the two relevant departments do not communicate as well as they might: the Transportation Department was unwilling to adapt their LRT extension planning to take into account the 17 hectare, 3,000-unit mixed use project, and integration with transit will

be lacking as a result. Communication within departments is sometimes poor as well: Edmonton Transit System planners have very little say in how their own transit facilities are designed (Young, Backstrom and Regiec 2005).

Nevertheless, changes are in progress. In 2002, Edmonton City Council accepted the Edmonton Intensification Audit, prepared in response to the identification of the city's need to increase residential densities to make better use of existing infrastructure and manage growth. This audit was meant to provide a reference point for future policy, identify trends, and identify opportunities and barriers to intensification in the existing policy environment. Following on the recommendations of that study, in 2004 Council adopted a subsequent policy document, Smart Choices for Developing Our Community. It recommended, among other things, that Edmonton develop a comprehensive transit-oriented development strategy, consider pedestrian-friendly alternatives when making infrastructure and development decisions, develop a comprehensive growth scenario with the next municipal plan review, and develop city-wide urban design guidelines.

Interestingly, in October of 2005, Edmonton initiated the 109 St. Corridor Land Use Study, prompted by significant development interest along the major arterial roadway and heavily used transit route on the city's south side. The study will recommend "an approach to managing the type, quality and appearance of redevelopment in the study area" (City of Edmonton 2005b, 10), and was justified on the grounds of the Smart Choices policy recommendations. Although transportation issues were not explicitly identified as being justifications for this study, it indicates that the redevelopment potential of transportation corridors is being recognized in the city, by developers and planners alike.

Other projects and policies relevant to sustainable transportation have been the Multi-Use Trail Corridor concept, a city-wide network of recreational trails and commuter routes for non-motorized modes which is nearly complete, and recent significant investments in public transit service (an 8 km extension of the light rail line, and planning for at least 3 new bus rapid transit lines across the city).

It is too early to know what kind of effects these planning changes will have on the sustainability of transportation in Edmonton, but it seems clear that planning for modes other than the car is on the rise.

3.2.3 Vancouver

A medium-sized city at the heart of Canada's third-largest metropolitan region, there are currently 605,000 people living in the City of Vancouver, and recent growth projects that there will be 668,000 in the city by 2021. Since Vancouver has little greenfield land on which to develop, however, population growth could be constrained by how much development or redevelopment occurs in that timeframe; based on current planning policies and household sizes, Vancouver sees potential to accommodate up to 642,000 residents within its boundaries (City of Vancouver Population and Housing). In contrast to Hamilton, Vancouver has done very well in the change from an industrial to a service-based economy.

The Vancouver region, home to over 2 million people and including Burnaby, Surrey, Coquitlam, and many other municipalities large and small, has a lengthy history of innovative planning approaches. The 1975 *Livable Region Plan* sketched out a future of hierarchical town centres interlinked by high-capacity transit services. A regional planning organization, the Greater Vancouver Regional District (GVRD), was charged at the time with significant land use and transportation planning authority. This plan continues to be updated and adopted by Vancouver region municipalities. GVRD has continued to coordinate regional planning in the BC Lower Mainland, though it no longer oversees regional transportation, that function having been shifted to the Greater Vancouver Transportation Authority, more commonly known as TransLink (GVRD website; TransLink website).

The City of Vancouver proper has been wary of the car since the 1960s, when two proposals, one for a Chinatown freeway and one for a new bridge crossing, were defeated by widespread public protest. Gordon Price, SFU professor and former Vancouver city councillor, has called the failure to build that freeway the "most important thing that never happened" as it marked the point at which Vancouver realized that building more roads would not solve congestion (Price 2001, 12).

In 1995, Vancouver adopted *CityPlan*, a municipal plan document that said Vancouverites wanted to "put transit, walking, and biking ahead of cars to slow traffic growth in their neighbourhoods and improve the environment". It identified as a priority

the development of 'neighbourhood centres', mixed use areas with increased housing choices, jobs, shopping and neighbourhood services which would usually be focused on existing shopping streets. One of the reasons given for this approach was to reduce "the need to travel long distances from home to jobs and services" (City of Vancouver CityPlan). The *Vancouver Transportation Plan* of 1997 directed that *CityPlan*'s priorities required an allocation of more road space to transit and cyclists, and improvements to pedestrian environments. It set out specific modal share targets for different areas of the city and the city as a whole, to be achieved by 2021, with regular monitoring in intervening years (City of Vancouver Transportation Plan). A third city-wide policy direction was set in 2002 with the adoption of a formal position, definition and principles on sustainability, to be used as a framework for all municipal government decisions. This related to transportation and land use decisions by directing that the city should reduce its dependence on fossil fuels, especially in the area of transportation, and should look to reduce resource consumption wherever possible (City of Vancouver Sustainability).

The combination of these ideas and principles can be seen in the city's plan for the development of Southeast False Creek as a model of high density, sustainable urban development. The official development plan for this area, approved in 2005, envisions a 36 hectare mixed use community for almost 14,000 residents with "a [wide] range of transportation choices that promoted more ecologically, socially and economically sustainable modes of travel", and representing some of North America's highest green sustainable transportation standards and requirements (Transport Canada 2005, 1-4). Vancouver's zoning bylaw exemplifies many of these ideas as well, allowing high densities and a mix of uses as a matter of course, and direction on how to integrate buildings with the pedestrian environment. This planning instrument has significantly impacted the evolving character of Vancouver's downtown (City of Vancouver Zoning Bylaw).

Vancouver's policies have already shown significant success. Employment in Vancouver has grown steadily over the last ten years, resulting in a 23% increase in trips into the city from surrounding areas; however, vehicles entering and leaving the city have actually decreased by 10% over the same period. New trips to and within Vancouver have been increasingly accommodated on transit, bike, and walk modes. Major

destinations such as Central Broadway and UBC have doubled and tripled their transit trips in the past ten years, respectively. Walking has become the fastest growing and most important way to get around downtown, while cycling trips have doubled during the period that the city doubled the length of its bikeway network (City of Vancouver 2006).

3.3 LESSONS FROM THE MINOR PRECEDENTS

The preceding descriptions offer a variety of examples of how cities in Canada and around the world are approaching the sustainable transportation challenge, and highlight different lessons which may be useful for other cities following them down that path.

Groningen, Freiburg and Vancouver each shifted away from over-reliance on the car as a result of strong public interest in the issue. The success of these cities has been many-pronged: planning processes were integrated in different ways; mixed uses and increased densities in already built-up areas were encouraged, along with improved pedestrian environments; and public investments in alternative transportation options were made by each. In Groningen and Freiburg, aggressive strategies were pursued to remove cars from the streets in large central-city pedestrian zones. Vancouver did not go this same route, but has put policies in place that consider a hierarchy of transportation options, meaning that pedestrians are planned for first, then cyclists, transit and finally, automobiles.

Curitiba is often pointed to as a model for transit-oriented development, though it is not at all clear whether the Curitiba experience is replicable in other places, owing mostly to the relatively undemocratic political environment in which many of its most successful policies were first established. Nevertheless, the city has been tremendously successful at making public transit the focus of both its transportation system and urban development, and doing so with relatively limited public resources.

A comparison of Curitiba to European cities such as Groningen or Freiburg suggests that the size of a place does not matter: Curitiba is a large city at the centre of an even larger region, which grew extremely fast during the period in which the majority of

changes were being made; Groningen and Freiburg are both small, fairly slow-growing cities that have nevertheless managed significant and positive change.

Edmonton and Hamilton offer examples closer to home and more in keeping with the Winnipeg context. Edmonton is today a rapidly growing city with growing municipal resources, but it was not always this way. Hamilton's recent history suggests a city in roughly the same boat as Winnipeg, with modest, steady growth following a slow but steady economy, though Hamilton does experience overspill effects from its mammoth neighbour to the northeast.

Both cities are now taking steps to shift their policies and planning processes towards a more sustainable approach. Hamilton reveals that good intentions are not enough, and that clear goals, with measurable targets and sustained political support, are needed to ensure change occurs. A city that is not proactive may find that outside governments such as the Province of Ontario will impose rules from above, reducing the say that local politicians have in setting goals and priorities. Edmonton shows that even a booming city, with wealth coming largely from the energy sector, sees the need for a different, more sustainable, transportation system.

This chapter has offered a relatively general overview of steps being taken in international and Canadian cities to achieve greater sustainability of their transportation systems through increased integration of planning functions, investments in alternative transportation infrastructure, and in most cases, a focus on changes to urban form. The following chapter will delve deeper into the planning policies and processes of Toronto and Minneapolis, both of which have recently been pursuing improvements to alternative transportation choice (among other goals) through the creation of corridor redevelopment plans.

4 MAJOR PRECEDENTS – TORONTO AND MINNEAPOLIS

Toronto and Minneapolis are cities facing significant growth pressures and transportation challenges. Both cities are pursuing similar planning processes in order to find ways to accommodate increased housing options in established areas along major transportation corridors, and these processes are taking into account the need for a different kind of urban form; in particular mixed use, density and urban design that is supportive of alternative transportation options.

4.1 TORONTO BACKGROUND

4.1.1 *Population and Economy*

The city of Toronto is Canada's most populated municipality, with about 2.6 million residents in 2001. It is the heart of Canada's largest metropolitan area; nearly 5.3 million people were living in the Greater Toronto Area (GTA) in 2001. Both Toronto and the GTA as a whole are projected to grow massively in the coming years: the city will add some 400,000 more residents, while the surrounding regions are expected to swell by a further 1.75 million people, bringing the GTA's total to nearly 7.5 million people by 2031 (City of Toronto 2002a).

Toronto's economy is well-rounded and robust, and is expected to continue to be so. Employment in Toronto is expected to grow rapidly during the period to 2031, with jobs in the City of Toronto expanding from 1.3 million to 1.84 million. However, job growth in the surrounding region will occur at an even faster rate, adding nearly 1.3 million jobs in the same period, significantly reducing Toronto's share of the overall job market (ibid.).

4.1.2 Local Policy History

Two Toronto planning reports from the late 1980s and early 1990s have made a significant contribution to current planning policies: the *Housing on Main Streets* report of 1989, put out by the then City of Toronto, and the *Guidelines for the Reurbanization of Metropolitan Toronto*, published in 1991 for the Municipality of Metro Toronto, the then regional body of government.

In the late 1980s, Metro Toronto carried out a series of planning studies in the lead up to a new regional plan. Key recommendations of these reports were the redevelopment of: obsolete commercial and industrial areas; underdeveloped sites within mixed use nodes and centres, and within 750 metres of rapid transit stations; and a Main Street program to increase densities in low density areas along major streets. At the City of Toronto, enthusiasm for the main streets idea translated into the publishing of the *Housing on Main Streets* report in 1989. The hope was that through a regulatory framework allowing and encouraging property owners to redevelop their sites, adding new residential storeys onto existing buildings, the city could add to the residential stock without having to invest in much new infrastructure. The idea underwent an evolution over the 5 years following the publication of the first report, which at first offered increased densities as-of-right while requiring no new parking provision, to a bylaw which required planning approval, limited densities and heights, and included parking requirements, except for the smallest of sites. The result was a plan that did not offer attractive enough opportunities, and very few sites were redeveloped (Tomalty 1997).

Another result of those planning studies carried out by Metro Toronto in the late 1980s was the *Guidelines for the Reurbanization of Metropolitan Toronto*. This report reflected a change in intensification policies, away from simply trying to improve housing availability towards a more comprehensive planning process, addressing issues such as environmental destruction, land use and transportation interactions, and fiscal inefficiencies wrought by existing development patterns (Tomalty 1997). The Guidelines carefully laid out ideas for the mixing of uses and different housing types, placed a strong focus on transit and other sustainable transportation, advocated urban design that would

foster pedestrian behaviour, and suggested a shift in urban form towards intensified centres and corridors through infill (Berridge Lewinberg Greenberg 1991).

These Guidelines were never actually adopted as official policy by Metro Toronto, but many of the ideas made it into the Metro Toronto plan of 1994, and the report served as an unofficial guide for land use planners throughout the 1990s (Tomalty 1997). Ideas rooted in both of these reports have resurfaced in the new *Official Plan* for the present City of Toronto.

4.1.3 Current Policy Context – Provincial

Two recent policy pieces from the provincial government are having an impact on the Toronto region, both of them mentioned previously in reference to Hamilton: the *Greenbelt Plan* of 2005 (Province of Ontario Greenbelt) and the *Places to Grow: Growth Plan for the Greater Golden Horseshoe* (Province of Ontario 2006). The first affects the City of Toronto in a peripheral way, placing a huge swath of land surrounding the GTA in agricultural and natural reserve. This policy may affect the City of Toronto by forcing the surrounding municipalities to modify the way they approach development, restricting their land supply, thereby impacting Toronto's regional context. The more significant policy in that respect, however, is likely to be *Places to Grow*, which will significantly impact the shape of development in all GTA municipalities.

This plan directs that, by 2015, a minimum of 40% of new development in all municipalities affected by the plan will be in built-up areas (14). Intensification areas will be planned to "provide a diverse and compatible mix of land uses" and support "transit, walking and cycling for everyday activities" (15). Municipalities will designate 'intensification corridors' to accommodate new growth, along with 'growth centres' and transit station areas.

Transportation system planning and investment, and land use planning are to be coordinated to achieve the goals of the plan, and the system will offer a range of modal choices that are financially and environmentally sustainable (24). Transit is presented as the priority for planning and new investments (25).

There has been criticism of the plan. The Toronto-based Neptis Foundation, while praising many of the plan's goals for managing growth and intensifying urban areas, believes that the plan seems unlikely to meet its own objectives, citing targets that are less aggressive than they should be, and a lack of accompanying policies and plans to make the proposed measures work, such as a comprehensive transportation infrastructure plan for the province, necessary to produce investments in transit service that the plan calls for, for instance. Neptis research has found that modest increases in intensification patterns are likely to achieve little in the way of increased transit use and decreased land consumption patterns. They estimate that a 40% intensification target is not as big a jump from current patterns as it may at first appear. Criticisms from the Alberta-based Pembina Institute have made similar points (Neptis Foundation 2006 and Winfield 2006).

In spite of the criticism, however, the plan does offer a framework for rethinking the development patterns of Ontario municipalities, and signifies an aggressive provincial return to regional planning that has been absent for a quarter century or more.

4.1.4 *Current Policy Context – Clean, Green and Healthy Toronto*

In 2000, the City of Toronto adopted *Clean, Green and Healthy: A Plan for an Environmentally Sustainable Toronto*. This plan does not offer much discussion of land use or urban form, but it does discuss sustainable transportation at some length. It proposes to provide Toronto residents and visitors with “the widest range of sustainable transportation options that are seamlessly linked, safe, convenient, enjoyable, affordable, economically competitive, and which significantly reduce the environmental, health, social and economic impacts of personal transportation” and “to give priority in transportation and land use decisions to sustainable transportation” (53-54). It states that the city needs to “integrate land use and transportation planning. Decision-making must be coordinated and integrated across all City departments, levels of government and sectors” (55).

With the adoption of the new *Official Plan* in 2002, these recommendations were adopted, and changes are in progress. A number of different initiatives are considered

part of this process, though few indicators for success are offered in the sustainability plan's 2004 status report (City of Toronto 2004).

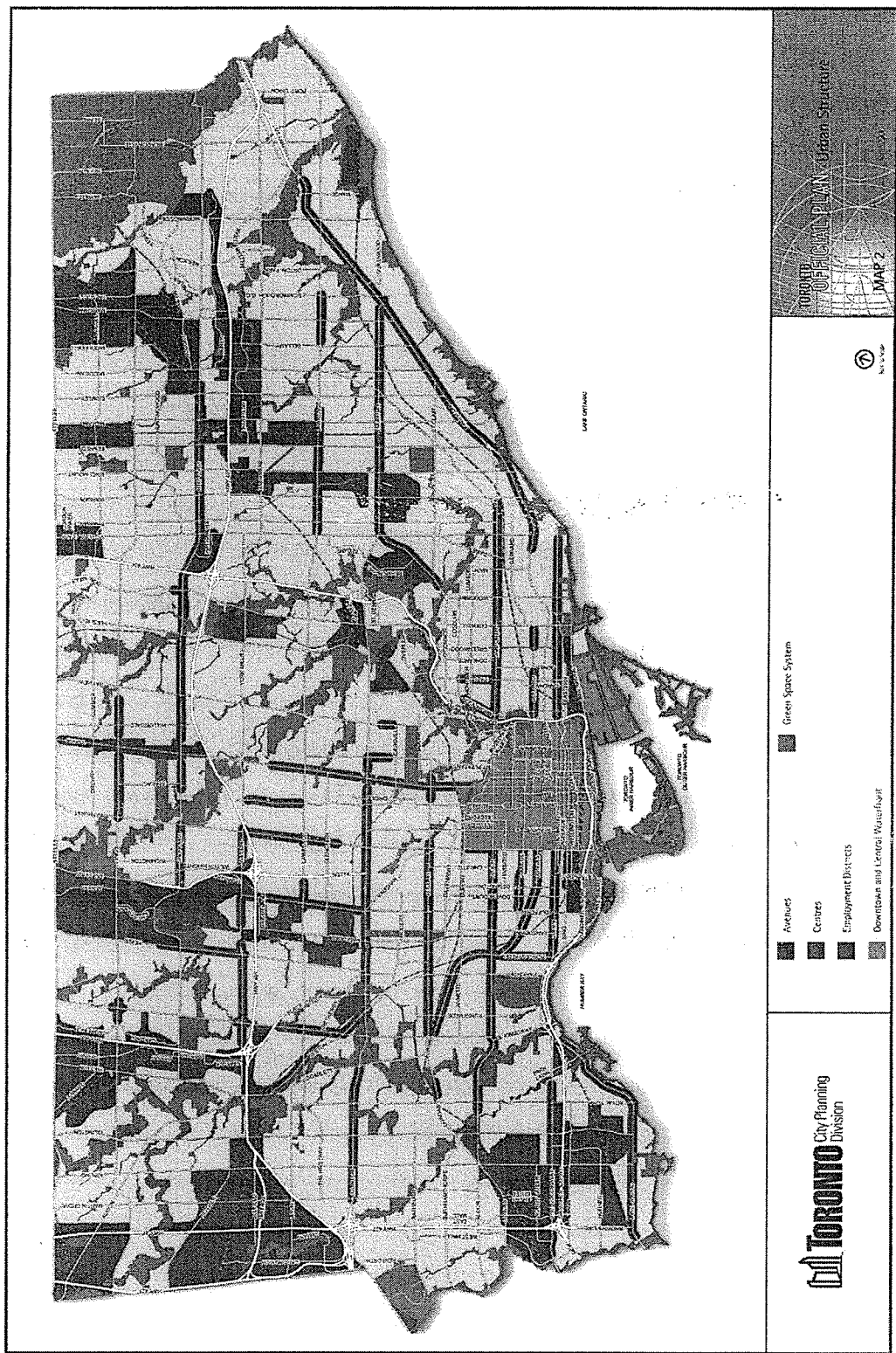
4.1.5 *Current Policy Context – Official Plan*

Toronto's *Official Plan*, the first such plan produced by the amalgamated City of Toronto, was adopted in 2002. The plan posits a new framework for development planning that integrates land use and transportation decision-making. As already mentioned, the City of Toronto expects significant growth in population and jobs to 2031. Nearly 75% of the city is to be maintained in more or less its current form, with natural areas and most low-density residential neighbourhoods being protected from major development. This leaves the other quarter of the city to pick up the slack: generally, major growth areas are to be those locations where "good transit access can be provided along bus and streetcar routes and at rapid transit stations" (City of Toronto 2002b, 11); locations such as Downtown, the Central Waterfront, Centres, Avenues and Employment Districts, as designated in the plan.

From a transportation standpoint, an objective of the plan is to provide a "wide range of sustainable transportation options that are seamlessly linked, safe, convenient, affordable and economically competitive" (12). Transit is identified as the first priority for new transportation investments, and many of the transit infrastructure priority areas coincide with identified locations for growth; transportation investments and new development are envisioned in the same places.

The Avenues are "important corridors along major streets where reurbanization can create new housing and jobs while improving the pedestrian environment, the look of the street, shopping opportunities and transit service for community residents" (22). Generally, these Avenues are corridors that are already "well-served by transit [and] the existing road network and which have a number of properties with redevelopment potential" (ibid.). The growth and redevelopment of the Avenues are to be supported by high quality transit services, including priority measures for buses and streetcars, combined with urban design practices that promote a street that is "safe, comfortable and attractive for pedestrians and cyclists". The plan calls for a framework for new

Figure 3: Toronto's planned urban structure



Source: City of Toronto 2002b

development on each Avenue, to be established by a new zoning by-law and design guidelines created in consultation with the local community. The zoning by-law is to set out the mix of uses, heights, densities, setbacks and other zoning standards (23). The Avenues are designated as Mixed Use Areas, meant for development that will “create a balance of high quality commercial, residential, institutional and open space uses that reduces automobile dependency and meets the needs of the local community” (78).

The Avenues are not the only locations slated for major redevelopment, and in fact the Avenues are seen to be locations for change which is incremental, rather than sudden and immediate. But over time they could prove to be locations of significant growth, accommodating large numbers of new residences and businesses along major transportation routes.

4.2 TORONTO INTERVIEWS

A series of personal interviews was conducted in June of 2006 with people involved with or knowledgeable about the Avenues planning process: City of Toronto land use planners, a municipal politician, a private sector planning consultant, a Toronto area developer, a member of an Avenues steering committee, and an academic with knowledge about planning in Toronto.

4.2.1 *The Avenues – Process*

The Avenues is a public process which starts in the *Official Plan*. Maps in that plan identify what streets are to be considered Avenues. The planning process proceeds incrementally, with municipal budgets allowing for only a few Avenues plans to be worked through each year, with those given highest priority by the planning department being budgeted for first.

A consultant is hired to carry out the study. This is done to ensure that the process comes across as being open and transparent, and to avoid problems related to possible ill will in the community towards the planning department or the City generated through

other projects. A consultant is considered impartial and therefore suitable for the process (Toronto 3).

Several public meetings are held, widely advertised within the community, hoping for attendance by residents, business owners, and local members of the development industry. At the first meeting, the goals of the process are laid out, and a steering committee of local residents is struck, 12 volunteer members whose job it will be to represent the interests of the community along the Avenue in question in regular meetings.

For the St. Clair West Avenues Study, currently underway, this committee consists of small business representatives, developers who have interests in the street, and residents' association representatives. The process in general, and this committee in particular, is intended to be 'multi-stakeholder', which has proven "very helpful in terms of getting a sense of what the market will take versus what the community will take" (Toronto 2).

A design workshop is held as the second public meeting. Attendees are divided into groups, and each group is asked to "address streetscape and urban design recommendations, building heights and massing, redevelopment location criteria, potential new open spaces, plus identify additional opportunities and/or constraints that the group may foresee in implementing a vision for the area" (City of Toronto 2006).

Following this event, the consultants, regularly meeting with the local steering committee, attempt to combine the results of the public meetings and discussions into a coherent vision for the study area. A third, and potentially final, public meeting, depending on the response of the community to what has been produced, is held at which the results of the process are presented.

As the ultimate implementing body, the planning department then reviews what has been produced to determine whether the proposals are workable. The department may require further refinement of the ideas, or even another public meeting if the intentions or details of the proposals are not clear or functional. Once reviewed, however, the proposals are drawn up into a report, an amendment to the *Official Plan*, and an amended zoning bylaw to cover the study area, to create a package to be considered by city council.

4.2.2 Benefits

In a broad sense, the Avenues studies have numerous potential benefits. According to one Toronto planner, "intensifying along transportation corridors is almost a no-brainer", and changing urban form to cater to alternative transportation modes is "fundamental" (Toronto 1). From a public investment perspective, the benefits are impossible to argue:

"You have streets that are paid for. You have sewers and subways running underneath them. You have all of this collective wealth, but if you don't put stuff there, what you're doing is walking away from an opportunity that is worth a huge amount of money. So that's the public policy reason to use what we have today: we've already got it. In some cases there is a complication in that it may be run down and need reinvestment. But it is quite clear that if you have people using transit and riding bicycles and walking to go to shop, you are using what you already own instead of spending it elsewhere" (Toronto 4).

Long term, there is a great deal of optimism amongst planners that doing plans such as the Avenues will reduce auto-dependency. But there has to be a long-term vision and a long-term commitment to the process, because "it's not going to happen overnight. It is our anticipation that over the lifetime of the *Official Plan*, which is 20 to 30 years, we will achieve these goals" (Toronto 3).

There are benefits in the local context as well, with abutting communities being offered some surety as to what things will look like, and with public realm benefits starting to appear over time as redevelopment occurs. "When developers come in," say planners, "it's not going to be the same reactionary development process that we see on singular developments" because the parameters of development have already been laid out and agreed to (Toronto 3). Business owners can also see some increased development potential for their properties, which increases their possible returns if they decide to sell.

This process offers public participation in planning, but also education about the development process, in two directions. The process invites residents to identify how they see their community developing and help to cobble together a vision for their Avenue.

This is important to ensure that residents feel “invested in the area. If a developer comes, then they have a framework to understand a particular development [proposal]. They learn how to analyze it, and decide whether it is a good development or a bad development. Having had the prior discussion about principles [through the Avenues process], they’ve been given a literacy about development” (Toronto 2). While residents are being offered frameworks for analyzing development proposals, planners and politicians are being informed about the kinds of sensitivities that people have; people get together and say ‘This is what I love about my street, this is what I don’t love about my street’, and government likewise is given a framework upon which to evaluate and direct change (ibid.).

4.2.3 *Cultural Shift*

A problem with the existing built form in many of the Avenues study areas is that they were designed for the automobile with parking at the front and buildings at the rear end of their sites; the “pedestrian realm, pedestrian access and buildings on the street were not even contemplated at the time” (Toronto 3). But a pedestrian-oriented built form is not alien to the Toronto environment. Many of Toronto’s vibrant shopping areas, such as Bloor West Village and College Avenue, have excellent pedestrian activity, and “that’s the kind of thing [planners] are hoping to replicate” through the Avenues studies (Toronto 3).

There is broadening support for the idea of reurbanization, and the different options for transportation that go with it. A Toronto city councillor suggests that several changes are going on at once with respect to people’s attitudes to urban living: condominium and apartment dwelling is becoming “part of the fabric of who we are as Torontonians” and in general both politicians and the public are developing a greater willingness to accept tall and medium-sized buildings (Toronto 2). The same politician sees the less intensely populated parts of the City of Toronto as being at a transit crossroads:

"I think [the next election] will be key in terms of whether we want to become a transit city... We're not downtown here, we're not the suburbs. We're midtown. The question is whether the midtown area of Toronto is ready to embrace public transit in a fuller manner. I'm banking on it, but when people vote, they will have to decide".

For one of the first Avenues studies to be undertaken, Kingsway-Bloor, planning staff had proposed 4 storeys as a starting point for building heights. But the community itself, both residents and business members, came back with a recommendation of 6 storeys. This was because the area "had been in a downward turn economically for a number of years, and they wanted to create more vibrancy" (Toronto 3). Similarly, there appears to be a shift going on in the St. Clair study area:

"The degree to which people were interested in St. Clair surprised me. The fact that we suggested something like we did and had people understand that as being modest, and were interested in all the other enabling things, and what conditions the investor-developer would need in order to come, that was understood. And it isn't always. So I would say that there is a shift" (Toronto 4).

Politicians are encountering public opinion through the Avenues that says that "urban design is really important", that residents want to make their main streets more pedestrian friendly, that "ground floor commercial and residential above" is often a preferred form of development, and that increased density can be acceptable, even desirable, so long as it is done carefully (Toronto 2).

However, this is not to say that there is not opposition to these ideas from some quarters. While some study areas have embraced all of the Avenues concepts, other areas have approached the planning process as a way to beautify the street through improved urban design guidelines, but little else, and such studies are "not helping to deliver people to these locations" (Toronto 4). Height and density still tend to be the biggest sticking points for people, along with concerns over traffic and the ability to access parking.

4.2.4 Challenges

Unfortunately, even after so much public input and significant municipal resources put towards this planning process, results are not guaranteed. The first Avenues study to be completed, the Kingsway-Bloor Avenue Study, has had nothing significant happen since the plan was approved in 1999; disappointing, especially in view of the fact that the community was completely in favour of the plan. Part of this may be that developers do not make their decisions in the same way that politicians or planners do:

“[Developers] don’t think in linear terms. Avenues and main streets tend to be linear. They see concentrations, Yorkville or downtown. They don’t see it as easily on main streets. The main streets will happen, and they are beginning to happen, but it is a slow process...It’s happening wherever [developers] think the value is. The market leads. If the market says this site is ready, it’ll happen” (Toronto 1).

This is not to say that municipalities cannot do things to encourage and attract development to priority locations. On St. Clair, a large municipal investment in the streetcar right-of-way, giving transit its own operating space along the street, has helped to catch the eye of developers. Smaller changes, such as a façade improvement program, new patio licenses, the funding of events and festivals, and experiments with transit transfers are combining to create a “buzz”, a sense that something is changing on the street and making it a more attractive place to be (Toronto 2). “Public investment in the environment makes a huge difference...to encourage people to acquire these lands and go through all of the risk associated with it, they need some help, some sort of kickstart” (Toronto 4). Public investment may help attract new development interest, at which point the results of the planning process can be tested.

If a plan is designed without practical input from the development industry, it may in fact drive investment away. Finding the appropriate balance between what the community will accept in terms of height and density, usually the biggest stumbling blocks, and what will be financially feasible for prospective developers, is not easy. In the case of the St. Clair West Avenue Study, now drawing to a close, such a balance appears to have been found. The committee finally agreed to considerable height, 9

Figure 4: Façade improvement on St. Clair



Source: Author

storeys, for an area generally characterized by 2 or 3 storey buildings. Such a change was agreed to because it was recognized that such an increase in density, “if it happens, would bring activity, life, services and all those things” (Toronto 4). From the development side, the proposed plan is workable, though marginally so: “At 8 or 9 [storeys] some adventuresome people might try to assemble land, put it into a project and ultimately build” (ibid.).

The challenges facing developers wanting to build in old, established urban areas are significant. Blocks are characterized by numerous, narrow lots, and sometimes limited depth, of concern because of shadowing restrictions. Fractured ownership, sometimes up to 20 properties for a single block, poses investment risk to developers, who may encounter holdouts who do not wish to sell, or who raise their asking price, thinking they are sitting on a real estate bonanza (Toronto 1 & 4). Such a delicate balancing act between community and industry interests can come undone if there are

changes in market economics, such that a plan so carefully crafted may no longer make economic sense.

4.2.5 Leadership

The presence or absence of political leadership has a huge impact on plans such as these because, ultimately, it is politicians who must commit to implementing them. Direction offered in the *Official Plan* is helpful, but official plans are also “routinely ignored” in the words of one commentator; “you need real local and big picture political will to make something happen” (Toronto 4).

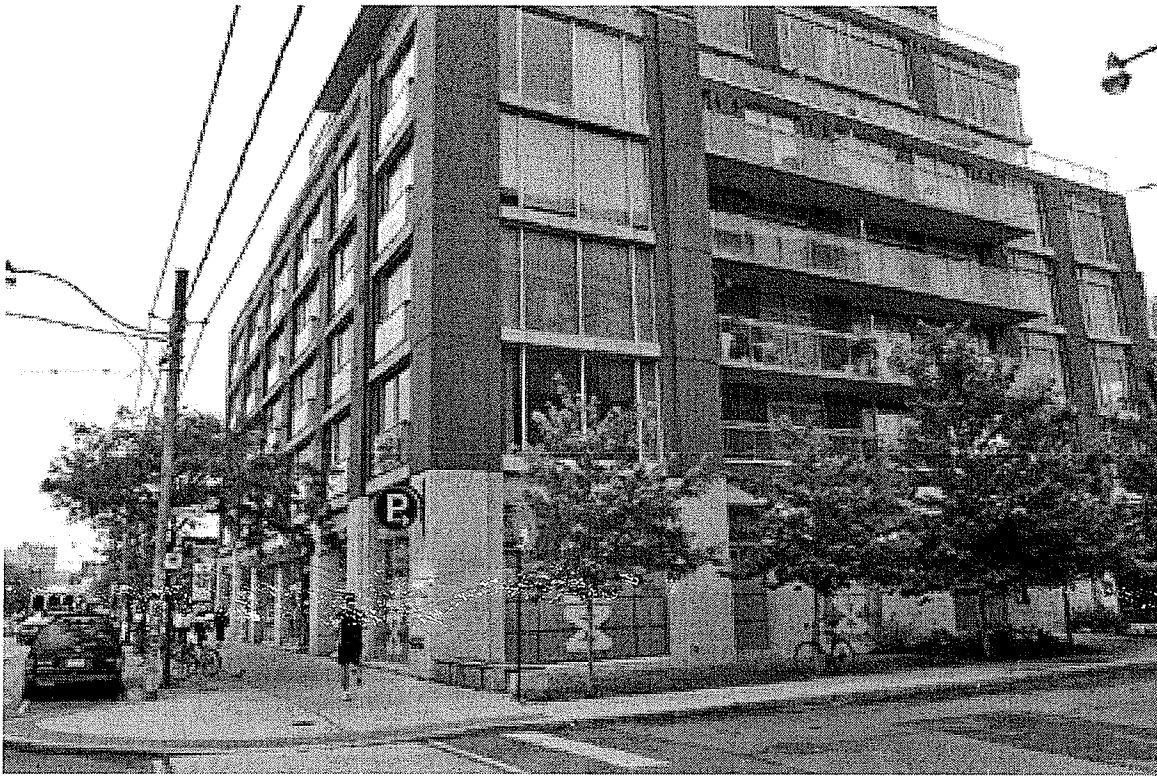
Politicians, of course, can be swayed by public pressure. And while citizens will often support redevelopment and intensification in principle, opinions may change quickly when it happens in the neighbourhood: “When it becomes problematic for the politicians is not with the principles, but with the NIMBY factor. It’s when some particular project happens in an area and someone doesn’t want it in their community and they start to organize” (Toronto 2).

The educational side of this process is perhaps the place where planners can do the most to shift this pattern of knee-jerk response. Educating residents about the development process and instilling ‘development literacy’ may promote more constructive, rather than obstructive, debate.

4.2.6 Results

A new type of medium-density urban form is slowly taking shape along Toronto’s Avenues. Development which is acceptable to communities, government and developers alike is characterized by buildings with heights of between 6 and 10 stories, built to the sidewalk, with commercial retail or office uses on the main floor where the market can support them. Sidewalks are widening, transit in some cases is being improved. Cycling does not as of yet seem to be a priority, at least not enough to devote street space to it along all Avenues. But several aspects of the Avenues process are supporting transit an

Figure 5: An Avenues prototype? Redevelopment at College and Markham



Source: Author

pedestrian behaviour in Toronto's neighbourhoods: more focus on the pedestrian experience along major streets, improved transit service, the placement of more people and a greater variety of activities along major traffic and transit routes.

4.3 MINNEAPOLIS BACKGROUND

4.3.1 *Population and Economy*

Minneapolis is the most populous municipality in Minnesota, with 383,000 residents, and also the region's employment centre providing over 300,000 jobs in 2000. Minneapolis is just one of many municipalities in a massive region, however: spreading over 7 different counties and 188 different municipalities, the population of the Metro Twin Cities Area was approximately 2.6 million in 2000. The region is economically healthy and growing fast. Population and job growth forecasts to 2030 predict nearly 3.7

million people in the region and almost 600,000 new jobs up to a total of 2.15 million. Minneapolis' share of that growth, in contrast, is expected to be 50,000 new residents and 45,000 new jobs; sizable for an established community, perhaps, but a small share of overall growth (Metropolitan Council 2004).

4.3.2 *Current Policy Context – State and Region*

The Minnesota State legislature appears to be only peripherally involved in growth management or sustainable transportation issues. Where potential for state action exists, policy documents seem to identify problems but the policy itself is very vague with regard to action. The 2003 *Statewide Transportation Plan*, for instance, identified demographic changes that were likely to impact the transportation system, such as aging populations and growing immigrant and low-income groups. Although the plan suggests that different types of transport may be required for these growing groups, the three 'strategic directions' of the plan are status quo approaches, tweaking the existing system by "safeguarding" infrastructure that exists, making the network function more efficiently, and improving the operations of the Department of Transportation; these are hardly innovative or bold policy directions (Minnesota DOT 2003). With regards to land use or growth management, the state offers guidance in the form of guidelines and voluntary programs, but does not seem to regulate.

Most of the intermunicipal policy action seems to take place on the regional governance level. The Metropolitan Council, formed in 1967 by an act of the state legislature, has been slowly strengthened over the years. It is now responsible for the planning and operation of the regional transit system and waste control systems, and has oversight through the Metropolitan Land Planning Act for municipal development planning, with the power to force changes to local plans if they do not conform to regional policies (Metropolitan Council).

Current regional policies are set out in the *Regional Development Framework 2030*, adopted in 2004. Policy 1, "work with local communities to accommodate growth in a flexible, connected and efficient manner", advocates increased mixed uses, the clustering of housing, businesses and services along transportation corridors (6). Policy 2,

“Plan and invest in multi-modal transportation choices”, proposes the expansion of transit service and the implementation of a system of “fully interconnected arterial and local streets, pathways and bikeways” (10-11). It is worth noting that, in spite of the advocacy for a more multi-modal transportation system, policy 2 also suggests that freeway systems should add capacity where possible. Being responsible for the regional transit system, the Metropolitan Council also sets a target of doubling regional transit ridership by 2030.

The Framework spends a great deal of time extolling the virtues of doing things differently. Mixing uses is discussed at length, as is the rationale for investing in transit over new freeway construction, at the same time as it is suggesting that an expansion of freeway capacity should occur. This suggests that such principles are far from being orthodox approaches in the Twin Cities area. Although the Metropolitan Council has authority to force changes in local development plans, the principles laid out in the Framework are quite general, and it seems unlikely that such a clash would occur very often. Nevertheless, direction for development along corridors and a more multi-modal transportation system is present.

4.3.3 *Current Policy Context – Sustainable Minneapolis*

In 2003, the City of Minneapolis adopted the *Sustainable Minneapolis Plan*, which is to be integrated into the *Minneapolis Plan*, and which set out 23 different sustainability indicators, with action targets that would be monitored and regularly reassessed. Unfortunately, land use and transportation issues were given a very low profile in the plan, with only the extension of cycling routes and downtown modal share split being identified. The numbers of affordable housing units built each year was another indicator, however – of interest because the provision of new affordable housing along transportation corridors is a primary goal of the Corridor Housing Initiative (Sustainable Minneapolis).

4.3.4 *Current Policy Context – Transportation Plan*

ACCESS Minneapolis, the city's ten-year transportation plan, is currently in formulation and incomplete. However, a vision statement for the plan was released in 2005, and identified several goals for a sustainable transportation system. The statement declares that ACCESS Minneapolis will result in a "citywide transportation system that is multi-modal – pedestrian, bicycle, transit, automobile and freight", that "optimizes access to destinations by all modes", that maintains the city as a place that is livable and walkable while optimizing the operational capacity of the transportation system, and that, while recognizing the importance of other modes, favors transit so that it will become the mode of choice for residents and visitors alike (ACCESS Minneapolis Vision).

4.3.5 *Current Policy Context – Minneapolis Plan*

The *Minneapolis Plan*, a comprehensive development plan passed in 2004, offers support for both a balanced transportation system and the strengthening of urban form to support such a system. Goals 4 and 5 (of a total of 8) are to "create strong, vital commercial corridors citywide through mixed use development" and to "improve public transportation to get people to jobs, school and fun" (City of Minneapolis 2004, 1.i.1).

These broad goals play out in a number of different ways. With regard to the plan's vision for corridor development, it describes Minneapolis as a "city of neighbourhoods bound together by streets that function as corridors" and uses the terms 'community corridors' and 'commercial corridors' to describe streets characterized by types of mixed-use, linear development (1.4.1). Community Corridors are defined as locations that

"support new residential development at medium density and increased housing diversity in our neighbourhoods. They support limited commercial uses, which are measured against their impacts on residential character... Design and development along these streets is oriented towards the pedestrian experience" (1.4.2).

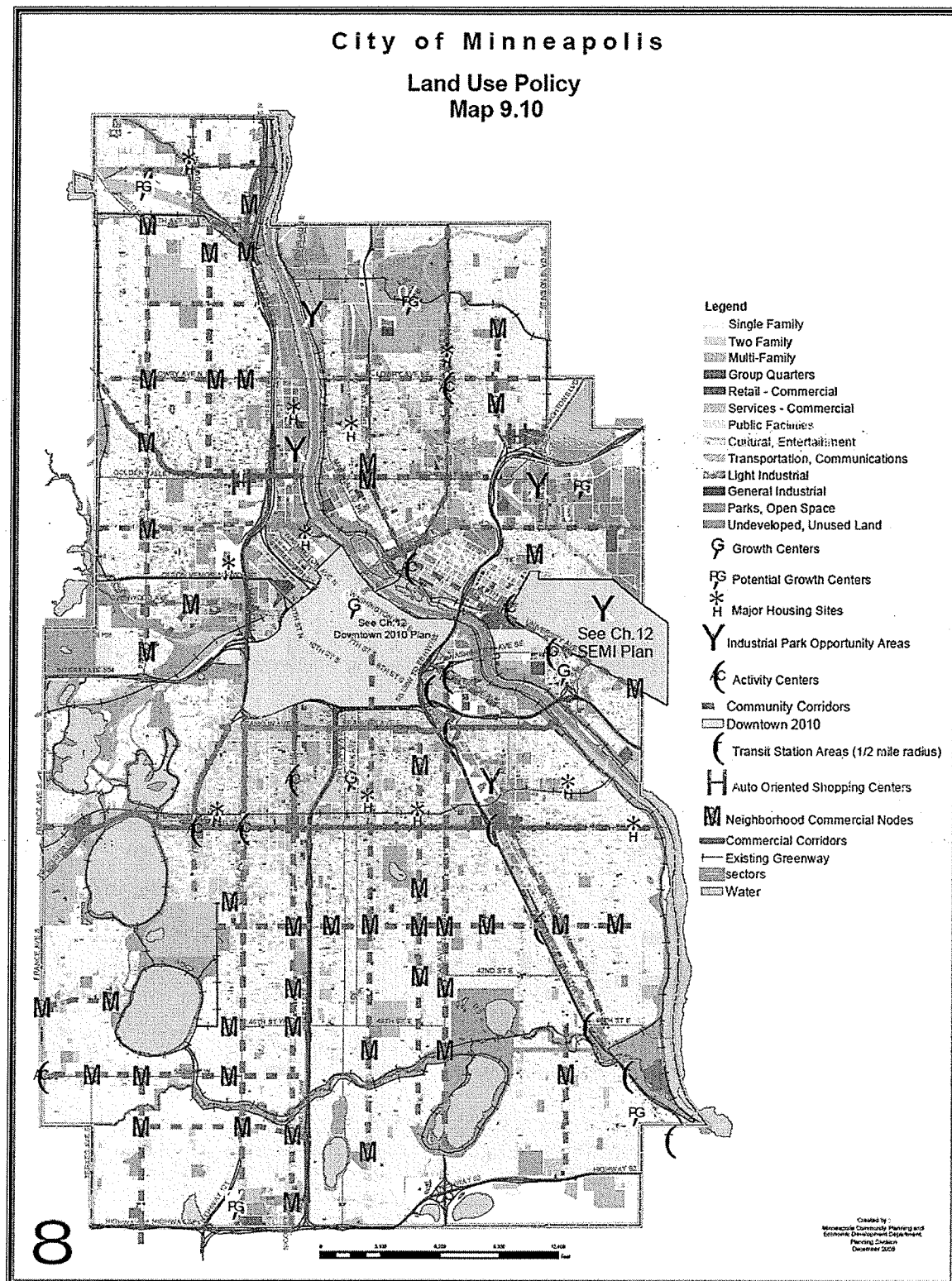
These corridors are often historical streetcar routes and exhibit remnants of that past in the types of buildings and location of commercial uses.

Commercial corridors, on the other hand, are identified as corridors which are dominated by commercial uses currently, but which may be declining in their importance as shopping or business destinations and which have potential for an intensification and greater mix of uses, including higher density residential uses. For transportation, it is suggested that these corridors must “balance both pedestrian and automobile orientation in their design and development” (1.4.4).

In addition to corridor objectives, the plan discusses growth centres, or nodes, “calling for certain existing centres to continue their growth, and for other areas to act as a magnet for new investment over time as the result of city strategy guiding development decisions” (1.3.1). It identifies transit station areas as places for intensification and a mixture of land uses, where transit, pedestrian and cyclist access should be prioritized over that of automobiles (1.4.14). Neighbourhood commercial nodes are identified as potential locations for intensification and greater mixing of uses, usually at the intersection of two community corridors (1.4.5). Finally, activity centres are identified as commercial areas of regional significance, characterized by a strong pedestrian character, have medium or high density, and a history of mixed uses. These centres are not viewed as major development areas, but are identified as areas the character of which should be maintained (1.4.7).

Chapter 8 is devoted to ‘movement’, and states that the “existing transportation system must be balanced to strengthen transit and other non-automobile forms of transportation, such as bicycles” (1.8.1). Several policy points set out in this chapter support sustainable transportation goals, such as following a policy of “‘Transit First’ in order to build a more balanced transportation system”, directing Minneapolis’ share of regional growth to “areas well served by transit, to existing and potential growth centers and along transit corridors” and continuing to “aggressively pursue transit improvements in corridors which serve major transit origins and destinations” (1.8.1). Although policy set out in this plan is usually fairly clear as to how land use decisions will take transportation into account, it is not made very clear how it will work in the opposite direction.

Figure 6: Minneapolis Plan Land Use Policy map



Source: City of Minneapolis 2005

Chapter 9 of the plan indicates that the city will “coordinate land use and transportation planning on designated Community Corridors through attention to the mix and intensity of land uses, the pedestrian character and residential livability of the streets, and the type of transit service provided on these streets”. The land use approaches to this policy are fairly clear, emphasizing new residential development, street design with a pedestrian orientation, and the mixing of uses by placing housing over shops, but how transportation planning will be coordinated with these measures is not made clear. Implementation steps laid out for this policy indicate that new residential development along community corridors is encouraged, but retail or other commercial uses, on the other hand, are to be maintained, rather than expanded (1.9.12). Neighbourhood commercial nodes, however, are considered appropriate locations for the expansion of retail, services or other amenities within primarily residential areas (1.9.13).

As a final note, all of these concepts are laid out spatially for the reader in maps which identify proposed locations for community corridors, commercial corridors, activity centres and so on (see figure 6). Policy is directly correlated with locations in the city such that no confusion as to intent is possible.

4.4 MINNEAPOLIS INTERVIEWS

In May of 2006, a series of personal interviews was conducted with people involved with or knowledgeable about the Corridor Housing Initiative. Those interviewed included members of neighbourhood association executives, a City of Minneapolis land use planner, a Minneapolis area developer and a key informant involved in the planning process formulation and execution.

4.4.1 *Corridor Housing Initiative – Process*

The Corridor Housing Initiative (CHI) was prompted by recurring problems in Minneapolis planning processes. Minneapolis has had a neighbourhood revitalization program since the early 1990s, which involved much community-based planning work

along neighbourhood corridors. However, the results of these community engagement processes were often not in sync with municipal priorities or where investments were going to be placed. As a result, although the community engagement processes were “a really good opportunity for people to engage and talk through ideas around commercial corridor revitalization”, when it came to the City for review and allocation of resources, the ideas generated by the processes did not always find their way towards implementation (Minneapolis 1). CHI was envisioned as a partnership between the City and community groups for targeted collaboration on corridor revitalization.

CHI is a competitive process. Neighbourhood resident associations are required to submit a letter of interest, identifying a project area. Initially project areas were conceived of as individual sites that were thought to be appropriate for redevelopment. However, the process is now expanding its scope, with neighbourhoods such as Kingfield in south Minneapolis using the process to create redevelopment plans for corridors through the neighbourhood from end to end (Minneapolis 3). Following submission, a selection committee composed of neighbourhood, municipal and funding agency representatives, determines which of the proposed areas are the highest priority. High priorities are determined based on the perceived feasibility of proposed study sites for redevelopment activity, community buy-in to the process, and conditions of the corridor in question, such as the amount of current transit service and planned municipal investments (Minneapolis 2).

The Center for Neighborhoods, a non-profit organization formed in 1994 to “find ways to strengthen neighbourhoods, to help them develop a more effective voice and to facilitate cooperation among neighbourhoods and city and regional policymakers” (Center for Neighborhoods website) served as the lead organization for CHI. The process was designed in collaboration with city planners, and was funded by the City of Minneapolis and various other interested parties, such as Hennepin Public Works and the Minneapolis Public Housing Authority. The community workshop aspects of the process were carried out by a working group of community members, city council member aides, City staff, and CHI funding partners. A technical team, which supported the work groups, had consultants offering support and knowledge in meeting facilitation, community

development, zoning and planning issues, and urban and architectural design (Center for Neighborhoods 2005).

The process begins in a setting where the community and the City determine together what the goals and outcomes are to be. From that agreement, organizers create a community workshop. The process generally revolves around 3 workshops, beginning with a basic overview of the City's policies, and an introduction to concepts such as the benefits of higher residential densities. One project had a sort of "Transit Oriented Development 101, Livable Neighbourhoods 101, bringing out some of the basic principles of urban form. And then you have a facilitated discussion about what it is they want to achieve through development and what are their concerns" (Minneapolis 1).

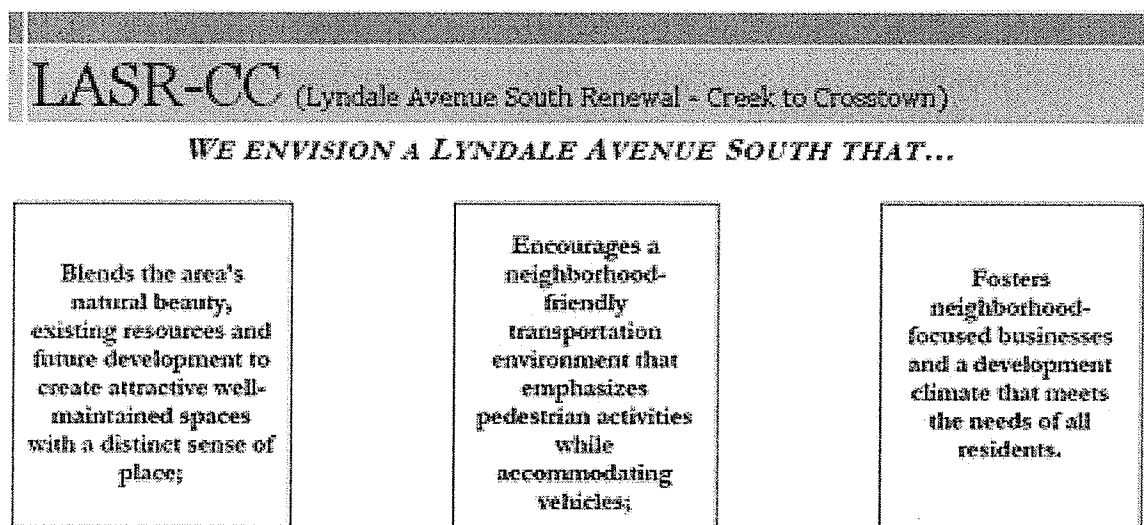
The second meeting is generally what organizers call the 'block exercise', an interactive game, and probably the most innovative element of the Minneapolis process.

"You take an actual site and you have these blocks that are to scale, and people build a virtual building on the site. They decide how much will be commercial and how much of the project will be affordable [housing units], and they try to put something together in there. Then they take the numbers from that and plug it into a software pro forma, and it tells them instantly whether they made money or lost money" (Minneapolis 1).

The exercise helps people understand the financial impacts of different decisions on development projects. But it does so in a way that isn't threatening, because a developer "isn't telling you how you need to think, or what's real, what's not real, you're actually just testing out your own ideas" (ibid.). Once participants have determined with the blocks and pro forma software what kind of development they would like to see, a designer takes the ideas and creates a quick rendering so that participants can actually see what it might look like on their site.

The final session tries to focus in on the basic ideas about development that the neighbourhood would like to promote to developers. It identifies and refines ideas that can then be put into promotional materials or websites that can be to attract development interest and communicate the development criteria agreed upon by the residents of the neighbourhood.

Figures 7 and 8: Excerpts from neighbourhood promotional materials



KINGFIELD'S ADVANTAGES

1. **Great Location.** Kingfield itself offers an excellent mix of retail, professional services and unique restaurants, as well as, cultural, religious, educational and recreational destinations. Its central location also provides easy access through multiple transit routes and Interstate 35W to nearby amenities.
2. **Organizational Support.** The Kingfield Neighborhood Association ("KFNA") offers organizational support and assistance in locating and developing higher-density and mixed-use housing, retail, and professional services throughout the neighborhood, but especially along Nicollet Avenue.
3. **Financial Support.** KFNA directs funds provided by the Neighborhood Revitalization Program ("NRP"), which it will consider allocating to projects that meet Kingfield's design and development goals and priorities.
4. **Engaged Neighborhood.** Kingfield residents have a reputation for being engaged and knowledgeable, as reflected in its active neighborhood organization.

Sources: LASRCC 2002 and KFNA 2004.

4.4.2 Benefits

The primary aim of CHI is to identify locations that are appropriate for new housing, especially affordable housing, in established communities. The benefits of intensifying housing in established communities are seen to be multiple: infusing more of a market for commercial and retail services within residential communities, building nodes for public transit and making a case for increased service, and making more

intensive use of existing municipal infrastructure. Mixed use buildings are considered to be an appropriate form, and increased use of alternative transportation options is hoped for as a result of intensification.

The process, however, does not focus heavily on alternative transportation options as a potential benefit. Rather, it is suggested that because the sites being discussed already have reasonably good alternative transportation options in the form of walkable neighbourhoods, regular public transit service, and in some cases cycling infrastructure, that helps make the case for these locations being appropriate for intensified housing. In Kingfield neighbourhood, transportation options were the pre-cursor rather than the hoped-for result: people were saying “Well, we’ve got [options] here; therefore, it’s a good place to put more housing”, as opposed to ‘Let’s put more housing here to attract mass transit’” (Minneapolis 3).

Minneapolis residents have historically been placed in a reactive mode with regard to development proposals, community input being sought only near the end of a long planning process. At that point so much time and resources have been invested in projects that developers are usually unwilling to change in response to community concerns and suggestions. A commentator who helped design the process describes the response to that challenge:

“We felt that the community was set up in that formula, to be NIMBY, to react. Really, their only option was to obstruct because they really weren’t influencing the project...so we said let’s pull that community voice up front into a proactive position, so they set the stage for development and so that they helped guide what they felt was important to achieve and accomplish in the development opportunities there” (Minneapolis 1).

Minneapolis developers have had generally positive responses to the project. It has helped to cue developers to know what a particular community’s hopes are. It helps give them “an environment where they know more about what they are walking into” (Minneapolis 1). And neighbourhoods have had improved experiences with developers as well. In Kingfield, a developer took interest in the neighbourhood after being approached by the neighbourhood association, and then worked very well with them. The real benefit there is that “if a neighbourhood is proactive and consciously has a plan in place, they

can then invite developers in who they feel would contribute to their neighbourhood, instead of always being on the reactive end and fighting developers” (Minneapolis 3).

Education about the development process is one of the biggest benefits of this process. A developer comments that there is a huge “disconnect between what people would say their values are and what they would come out and say at a neighbourhood meeting”, and CHI is helping to “close that gap” (Minneapolis 4).

The population of the City of Minneapolis has “declined by a third in the last 50 years”, and shopping patterns have changed greatly, so the original urban structure “cannot support the services and social environments that they once did” (Minneapolis 2). So the educational aspect of the process aims to discuss with residents what increased density can bring to a neighbourhood, and the types of services and lifestyle that it can support. The average citizen does not have a “wealth of knowledge about density or what the implications of certain urban form is...and they bring with them maybe two images of housing: the high-rise, 20 storey concrete building, and the single-family house” (Minneapolis 1). CHI introduces residents to a wide array of possibilities to fill in the gaps between those two extremes and dispel negative stereotypes about density.

4.4.3 *Cultural Shift*

The communities that the Center for Neighborhoods has worked with on CHI have called the work “transformational”. Residents talk about the change that they saw happen following this process, and how people became “much better positioned to interface and work on [development issues] than they were before it. The knowledge base and the relationships that have happened out of this have been quite astounding” (Minneapolis 1). In Kingfield neighbourhood, the residents’ association found that, as a result of focusing on carefully explaining the benefits of an “overall vision for the corridor and the neighbourhood as it relates to affordable housing, urban form and transit oriented design...the neighbourhood, to their credit, grasped it and supported it” (Minneapolis 3).

Minneapolis, being just one in a region of a hundred plus municipalities, can of course achieve only modest gains if it acts alone. Different cities in the region have

different philosophies, but there is growth in shared values within the City of Minneapolis and also between municipalities. A new generation of planners is coming in with more urban sensibilities. The Public Works Department has also been changing its attitudes to urbanism. With respect to traffic congestion, for instance, there is a new sense that congestion is acceptable at certain points, so long as the broader transportation system is functioning well. Minneapolis' Public Works Department recently hired 3 new transportation planners (as opposed to engineers) who are looking at transportation systems, rather than just point problems and responding with point solutions (Minneapolis 2).

Transit improvements are making changes in how things operate: the new Hiawatha rail line from downtown to Bloomington has broadened the debate about where density can and should go. Density is no longer seen as something that belongs in downtown and nowhere else, and there is a sense that going higher than 4 storeys outside of downtown may make sense now in certain locations, especially along the rail line (ibid.).

Although CHI has made an impact on the communities it has worked in, a broader cultural shift may require a reframing of debate about how we move around, and a reconceptualizing of what freedom and mobility mean for the residents of the Twin Cities, though it may take many years to change these ideas.

“As long as the concept of driving is still tied up with freedom and mobility, it's hard to argue against proposing more capacity to deal with congestion. The other side of the question is 'Is there any other way to get freedom? Freedom from the automobile, perhaps? Are there other options, other versions of freedom?' So some of these things are generational changes and it will take generations to get over them” (Minneapolis 4).

4.4.4 *Challenges*

A major challenge for this process, which often focused redevelopment possibilities for particular sites, was that there was no site control; neighbourhoods could identify ideal locations for redevelopment, but the attention focused on such sites could also attract interest from speculators, making the affordable housing goals of the process

harder to achieve. The solution has been two-pronged: where possible, CHI efforts have tried to look at City-owned properties first, so that control could be assured; for neighbourhoods where City-owned properties did not exist or did not meet the needs of the CHI process, the City established the Corridor Site Acquisition Fund, a \$1 million revolving fund available to take suitable properties off the market and avoid speculative pressures.

Figure 9: An identified redevelopment site in Kingfield neighbourhood



Source: Author

The City of Minneapolis, in spite of these efforts, still devotes most of its planning resources to reactive planning. The success achieved through CHI will not continue unless opportunities are taken to push the ideas further through the Comprehensive Plan and other avenues. A Minneapolis planner suggests there is a need for more “structured excuses to bring up densification, corridor redevelopment and other such issues” (Minneapolis 2). More time devoted to proactive planning processes by city planners would help.

One person involved with CHI offers a strong caution about the potential of the approach:

“Truthfully, this is not the ideal resource for every place. It works for places where development is coming. Places that are off the radar for developers, it’s not ideal. I’ve had cities approach me about this process, and they are trying to generate development interest, they’re not trying to fend it off. There are different places in the spectrum of market desirability. But because the urban area is becoming a more desirable place to live, and because developers are becoming more interested in providing housing in urban areas, this process is a good fit for [the Minneapolis] scenario” (Minneapolis 1).

Some developers are cautious about the impact of CHI. Although they generally seem “open to the idea”, the corridors that plans have been developed for are “small sites in the city-wide context” (Minneapolis 2). And as good as the plans arising out of CHI might be, they are entirely localized; the zoning regulations and building codes for the rest of the city are still set up to “deliver all the suburban sprawl that we see” (Minneapolis 4). Wide roads, segregated uses and other development policies that work against more compact development and more sustainable transportation are still the norm everywhere else.

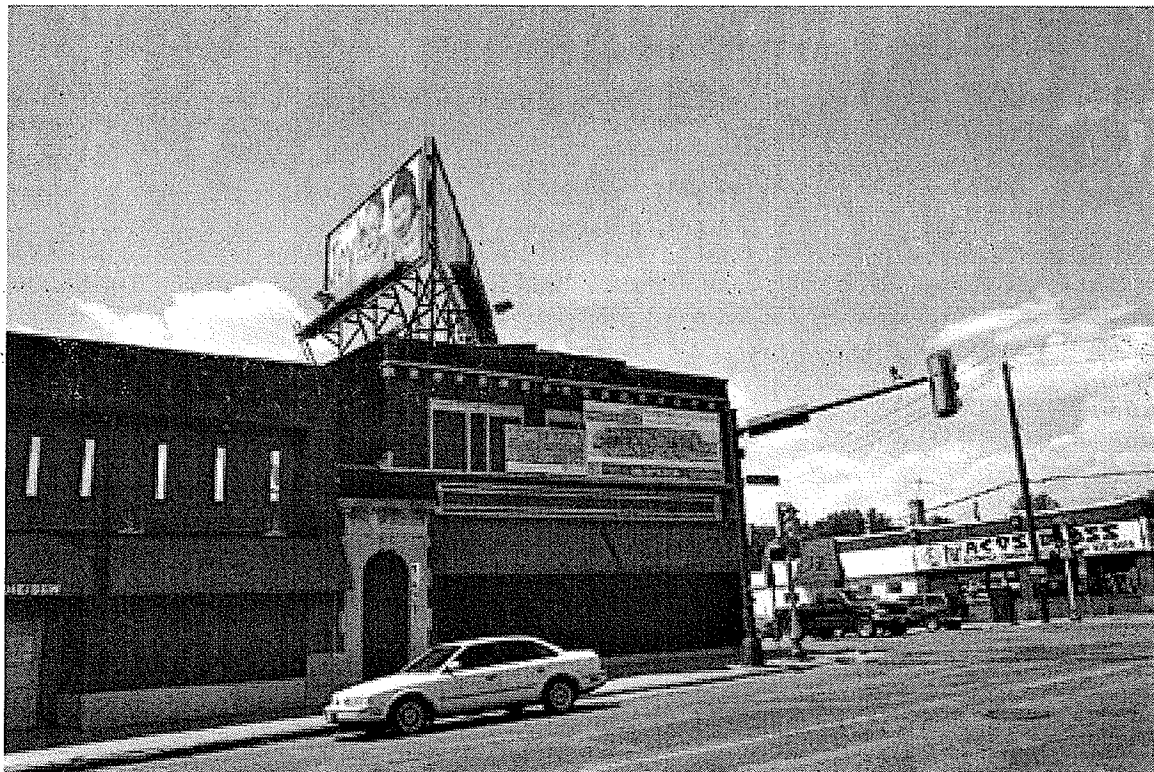
“I was arguing at one point that we ought to make that into one word, landuseandtransportation, so that you could never be using one without the other, because they are in fact completely linked. Our land use now reflects our transportation. Freeway interchanges are some of the most valuable places” (ibid.).

The implication here is that, although CHI makes some effort to connect the two, the rest of the planning establishment, not just land use planners, but all of the people that have an impact on how development occurs, need to make efforts to change the assumptions on which their decisions are based.

4.4.5 Results

As of 2005, three communities were in discussion with developers about development proposals, one community was headed into a master planning process that the CHI work had helped lay the groundwork for, and one community had promising opportunity sites it was just beginning to market. Also, CHI partners and participating communities hosted a forum at City Hall that drew over 30 developers and showcased all five communities (Center for Neighborhoods 2005). More recently, as of the summer of 2006, Kingfield neighbourhood had attracted a developer that was marketing the 38 Lofts, the redevelopment of an existing 2 storey building into main-floor retail and residential space above. In June, however, it was decided to switch the residential component to office space, the developer citing a lagging condo market (Minneapolis 3).

Figure 10: 38 Lofts project site in Kingfield neighbourhood



Source: Author

Development guidelines produced for the five initial study areas endorsed or indicated increased community support for mixed uses, higher intensity development, improvement of pedestrian and bicycle circulation along corridors, and the orientation of new development that is respectful of the existing built form, rather than catering to the needs of automobile traffic (Center for Neighborhoods 2005).

The project was one of three 2005 finalists for the Innovations in American Government Award of the Fannie Mae Foundation, which offers grants to foster the replication of promising governance projects across the United States. It is now entering a second phase, which will see it expand its geographic range into St. Paul and inner ring suburbs of the Twin Cities (Minneapolis 1).

4.5 LESSONS FROM THE MAJOR PRECEDENTS

Toronto and Minneapolis are cities that have come to similar conclusions from somewhat different directions. Both are major cities at the centre of large regions made up of numerous municipalities, and both are experiencing strong growth. In discussing cultural shifts in both cities, this chapter has revealed fundamental differences between the two places: the historic City of Toronto, and to a lesser extent the recently amalgamated suburban areas of the current City of Toronto, are places accustomed to, and even demanding, greater urbanism, vibrant street life and better transportation options. Minneapolis is much more accustomed to a car-based lifestyle, and ideas such as higher density, mixed uses and the need for transit are not as easily accepted.

In spite of these different cultures of urbanism, both cities are now moving towards the intensification of major streets, placing more residences and mixed uses with improved urban design along roadways which are not at all freeways, but rather multi-modal corridors for pedestrians, cyclists, transit and, indeed, cars.

The experience of planning in both cities for the kinds of streets just described has pointed to the importance of engagement with the community, on the one hand in order to better understand the issues that residents are facing and what they imagine for their neighbourhoods, and on the other to engage communities in an educative process about urban form, land use and transportation to foster greater development literacy and

appreciation for planning concepts. Minneapolis, in particular, discovered the benefits of interacting with citizens in ways that they could easily understand, with a planning process that was described as “transformational” for community groups and which has subsequently spread to other Minneapolis neighbourhoods and cities in the region.

Proactive approaches were found to be superior to reactive ones, and not only for planning departments. Minneapolis’ process put tools in the hands of community groups to pursue development on their own terms. Municipalities should not cease being active once planning processes are completed, either: it was found in both Minneapolis and Toronto that public investments could be important catalysts for directing and shaping the market in ways that reflected municipal priorities.

When planning for multi-modal corridors is dependent upon redevelopment activity to see the urban form changes that are envisioned, as is the case in both cities, plans must be carefully crafted to reflect market realities so that they will indeed attract development interest. Planning is a long-term process, and results should not be expected right away; but planning that is in tune with the development market will take better advantage of its potential to transform streets and neighbourhoods.

Many things may start with official plans, but the trick is to not let them finish there as well. They are broad-based documents which are, as pointed out in both the major precedents, regularly ignored by municipal politicians. Politicians can of course be pushed: by planners, or, much more effectively, by voters. In this regard, education and public discussion of urban issues, whether from the perspective of urban form or alternative transportation options, can do much to help citizens consider their views, formulate opinions and then push their elected officials into action.

A caution from Minneapolis: the planning and public engagement model offered by the Corridor Housing Initiative “may not work in every place”, in particular in neighbourhoods or municipalities that are not seeing development pressure.

The lessons of this chapter, in combination with the lessons derived from chapter 3, offer ideas for how a sustainable transportation agenda might be applied to the Winnipeg context. Before such applications can be determined, however, it is necessary to describe exactly what the Winnipeg context holds; the Winnipeg Case Study constitutes the following chapter.

5 THE WINNIPEG CASE STUDY

5.1 THE EXISTING WINNIPEG POLICY CONTEXT

5.1.1 Provincial

In 2001, the Province of Manitoba released a report entitled *Planning Manitoba's Capital Region: Next Steps*, which identified a need for municipalities in the Winnipeg region to have more coordinated planning processes. In response to this need, the Province proposed to work on strengthening its provincial land use planning regulations, and to work harder to manage inter-municipal relationships in the region.

Although this policy statement resulted in the creation of the Regional Planning Advisory Committee (RPAC), which was to carry out public consultations and make recommendations to the minister on regional planning issues, it is not clear if there has been any movement on the issue since the RPAC submitted its report in 2003. In general, the Province of Manitoba seems to be taking very little action to affect the shape of development or transportation systems in the cities.

Manitoba's *2020 Transport Vision* suggests that steps should be taken to reduce travel demand as a way of reducing environmental impact (Province of Manitoba 2005). However, it does not offer any clear idea of how this will be accomplished, and it does not lend any support to alternative transportation options. In fact, the report seems primarily concerned with freight and commercial transport, only peripherally concerned with passenger transport, and not at all with urban transportation issues.

5.1.2 TransPlan 2010

Winnipeg's latest attempt at a transportation master plan was *TransPlan 2010*, a document required of the City by the provincial government in 1993, but not actually released until 1998. In the opinion of one focus group participant, *TransPlan* was "an

enormous disappointment” as far as sustainable transportation interests are concerned: “The plan doesn’t even mention GHGs. Climate change is not even mentioned once. It all focuses on roads and there is almost nothing [in it] on public transport” (Focus Group).

The proposed plan seemed to indicate a preference for maintaining the primacy of the automobile in transportation decisions, making statements such as:

“[T]here should be a balance between funding of transit-oriented and automobile-oriented infrastructure improvements. The funding balance should consider the preference for automobiles implicit in the present split between bus ridership and automobile use” (TransPlan 1998, 88).

Following some controversy over the proposed plan’s content, *TransPlan* was never adopted, though it is used as an unofficial guide for Winnipeg transportation policy to this day (Focus Group).

5.1.3 *Towards a Sustainable Winnipeg*

Following on the heels of *Plan Winnipeg* (discussed below), then-mayor Glen Murray endorsed a sustainability policy entitled *Towards a Sustainable Winnipeg: An Environmental Agenda*. Citing global responsibility and the increasing recognition of the challenges facing the environment as motivators, Mayor Murray exhorted Winnipeggers to do “[their] part to reverse the decline of our natural environment and ensure the ecosystem of which Winnipeg is part is restored and enhanced for [their] children” (EPC 2000, 1).

The Agenda supported ‘thoughtful development’ through evaluating the costs and benefits of development proposals. The intent was to take “maximum advantage of existing infrastructure through increased densities and compact form, to commit to inner city revitalization and heritage conservation, and to provide integrated transportation options” (City of Winnipeg 2000, 2). It also supported a shift in fiscal and taxation policy away from what it called ‘perverse subsidies’ of expensive new infrastructure towards support of what already exists.

The fiscal sustainability element of the Mayor's program, the so-called 'New Deal', ran into trouble in 2003-2004, as town hall meetings on the subject turned confrontational. The environmental agenda advanced by Glen Murray ceased with his unsuccessful departure for federal politics, and seems not to have been taken up by his successor, Sam Katz. This sustainability policy appears to still be in place, but it is doubtful whether it is given much consideration by the current mayor and council.

5.1.4 *Plan Winnipeg*

Winnipeg's existing municipal plan, *Plan Winnipeg 2020 Vision*, adopted in 2000, lends support to most of the principles of urban development and sustainable transportation discussed in this practicum.

Plan Winnipeg predicts modest population growth to 2020, somewhat less than the Manitoba Bureau of Statistics projections quoted in section 3.2.1. The plan suggests that with modest growth, the principles of "containment and inner city revitalization" (7) which were proposed in the original 1981 *Plan Winnipeg* are still sound.

General principles laid out in the plan include: sustainability, examples of which would include the reduction of greenhouse gas emissions; social consciousness, which would include aspects such as social equity and universal access; thoughtful development, which includes making the maximum use of existing city infrastructure through "increased densities and compact form" and providing "integrated transportation options"; healthy living, which could include the promotion of active lifestyles; and local empowerment, encouraging citizens to "shape decisions that affect their lives" (10).

Section 2B-02 commits the City to the reduction of greenhouse gas emissions by "reducing the need for motorized transport through integrated planning and the promotion of compact urban form and mixed land use" and "providing realistic alternatives to single occupant auto use" (22).

Section 3A-01 directs that the City shall promote increased mixing of 'mutually supportive' uses in existing neighbourhoods, including residential, educational, recreational, institutional, commercial and possibly industrial uses, which seems to cover the entire spectrum of possibilities (30).

Section 3A-02 directs the promotion of “compact urban form in support of sustainability” by reducing reliance upon the automobile, and encouraging infill and the revitalization of existing areas, among other things (30).

Section 3A-03 directs that the City shall “integrate land use, urban design and transportation planning” by encouraging mixed use development to minimize travel distances, ensuring that all residential development is transit-supportive in its design, and integrating the needs of pedestrians and cyclists into the planning and design of transportation infrastructure (31).

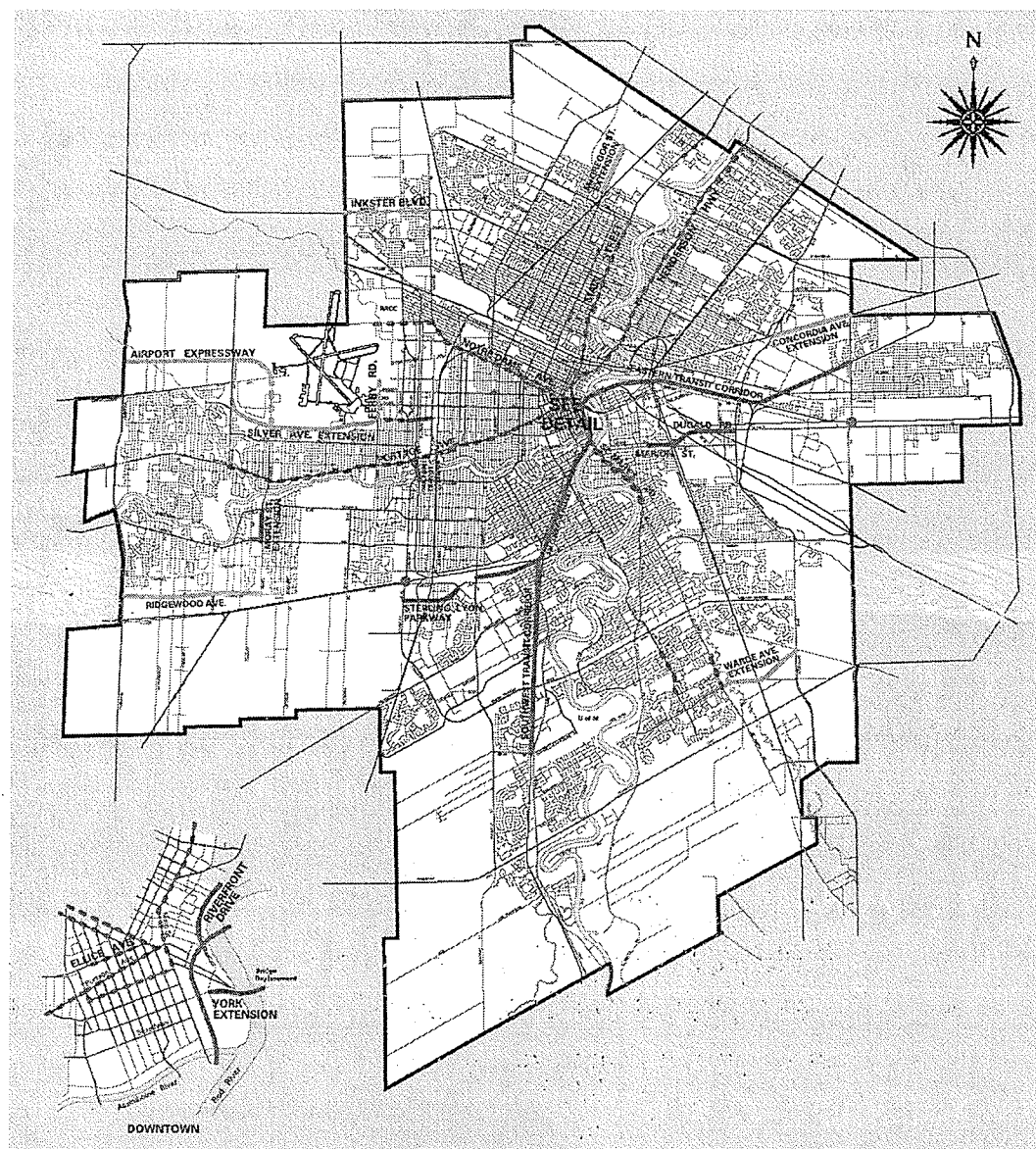
Section 3B-01 directs that the City shall promote vibrant neighbourhoods by encouraging and accommodating mixed uses in new and existing areas, including “high intensity residential and ancillary uses on sites adjacent to major traffic or transit corridors” (32).

Section 3C-01 directs that the City shall provide an integrated transportation network that supports sustainability and compact urban form by taking greater consideration of transit, cycling and walking in new developments and the planning of new infrastructure. 3C-02 also commits to improved transit service by making transit easier to use and committing to high speed transit (35). The plan also aimed to promote active living by making cycling a more feasible form of commuting to work (53).

Policy plates indicated the corridors which would benefit from major improvements to 2020, including a city-wide rapid transit network of exclusive transit rights-of-way and on-street transit improvements on some corridors such as Main Street and Portage Avenue.

While the plan lends considerable support to sustainable transportation and the urban form needed to support it, the plan does not make any attempt to define the types of urban form it would consider deleterious to these sustainable transportation goals. Not offering any guidance as to what to avoid, the plan fails to prevent development contrary to its principles. Articulating a positive vision is essential, but sketching out a negative vision is an important counterpoint to ensure clear direction.

Figure 11: Plan Winnipeg Policy Plate B, Transportation



Policy Plate

B

TRANSPORTATION

**PLAN WINNIPEG
2020 VISION**



Policy No. 3D-03, 3D-04

- | | |
|--|--|
| — EXISTING REGIONAL STREETS
(for information only, not
Designated by this Plan) | — MAJOR STREET WIDENINGS
TO 2020 |
| — RAPID TRANSIT WORKS TO 2020
(Blue-Only Roadway in a
Dedicated Right-of-Way) | — RAILWAY GRADE
SEPARATIONS |
| — ON-STREET TRANSIT WORKS
TO 2020
Transit Priority Measures
(e.g. Diamond Lanes, Transit
Priority Signals) | — DEVELOPMENT-RELATED
STREET ADDITIONS
(Time frame indefinite) |
| — MAJOR STREET ADDITIONS
TO 2020 | — DEVELOPMENT-RELATED
STREET WIDENINGS
(Time frame indefinite) |
| | — EXISTING HIGHWAYS
(Under Provincial Jurisdiction) |
| | — CITY OF WINNIPEG BOUNDARY |

EFFECTIVE DATE: December 12, 2001

This map is intended for information only.
Its interpretation should be confirmed
by contacting The City of Winnipeg
Planning, Property and Development Department
at: (204) 999-7731.



Source: City of Winnipeg 2000a

5.1.5 Winnipeg Zoning Bylaw

As of this writing, the draft zoning bylaw had not yet been adopted by Winnipeg City Council, but 2006 saw the proposed updating of this bylaw to reflect the priorities set out in *Plan Winnipeg*. Covering the entire city except for that area covered by the Downtown Zoning Bylaw, it marks a number of significant departures from the existing City of Winnipeg zoning bylaw 6400/94.

The zoning bylaw, of course, is a tool to implement policy contained in documents such as *Plan Winnipeg*. It responds to, rather than sets, policy. Shortcomings or lack of detail in the bylaw, therefore, may point back to limitations in policy that need to be addressed.

This draft zoning bylaw establishes several new district designations relevant to the interests of this practicum: Residential Mixed Use (RMU), Commercial Mixed Use (CMU) and Manufacturing Mixed Use (MMU).

The language describing these new zones is somewhat conservative in its attitude towards mix. With regard to RMU, for instance, the draft describes this zone as being “intended to facilitate the development of primarily medium- to higher-density residential development, though it also may contain limited small-scale commercial, institutional, recreational, and service facilities needed to support residential development” (City of Winnipeg 2006, 47). The draft suggests that development in the RMU district should “facilitate and encourage pedestrian travel between residential and nonresidential uses”, and proposes that such a mixed use district often will be “adjacent and incidental to a town centre, neighbourhood commercial centre, or other type of mixed use or major employment centre” (ibid.).

The CMU district is intended to provide for “community-serving mixed use development at a higher scale than is appropriate for neighbourhood locations”, and is intended for use “along selected corridors and at important nodes in the city” (48). The district is intended to include commercial, institutional, recreational, and service facilities needed to support surrounding neighbourhoods and may include multi-family housing, though the zone should be primarily commercial in character. As in the RMU zone,

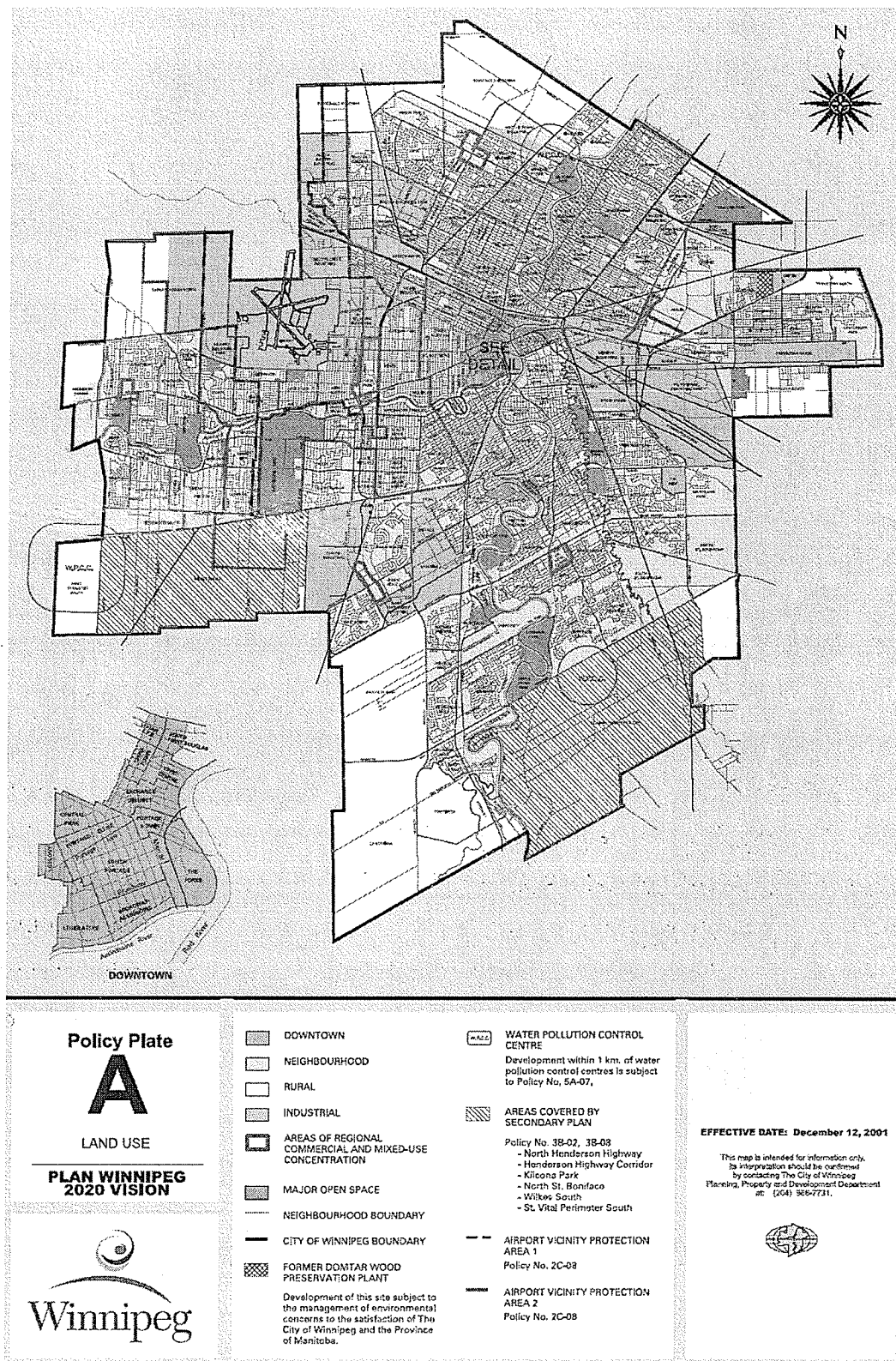
development is expected to facilitate pedestrian connections between residential and nonresidential uses.

Another relevant zone is the Commercial Regional (C4) zone. Whereas in the active zoning bylaw 6400/94, zones C4 and CR were intended for shopping centre areas, local and regional, respectively, the new C4 zone is proposed for major regional shopping and employment destinations, generally associated with the Areas of Regional Commercial and Mixed Use Concentration identified in *Plan Winnipeg*, located at St. Vital Centre, Kenaston and McGillivray, Polo Park, Portage Avenue east of Perimeter Highway, McPhillips and Leila, and Regent and Lagimodiere. This zone allows the mixing of many uses that other zones, residential or commercial do not, and is perhaps the most clearly delineated zone in terms of having its possible locations placed on a map.

The MMU district is quite limited in its mixing of uses, intended to provide “linked commercial and industrial activities that are supportive of industrial functions and are compatible with surrounding industrial use areas” (49). Uses may include offices, wholesale and business service establishments, campus-style industrial or business parks, and limited retail/personal service storefronts. The difference between this proposed zone and other zones, however, is small. Some uses are allowed as-of-right in MMU, but only as conditional uses in other industrial zones (e.g. micro-breweries and hotels, conditional in M1 and M2 zones), and a handful of uses are allowed in MMU that are not allowed in any other industrial zone (e.g. community centres, libraries, social service facilities and community gardens). Certainly, some uses are incompatible with others, but one wonders what impact such a zone will really have? It may offer somewhat more flexibility, but is it truly ‘mixed use’?

The limitations of this bylaw point out several policy gaps at the City of Winnipeg. As stated above, the new CMU zone will be appropriate along corridors and at important nodes; but which corridors and which nodes? The draft bylaw makes it clear that not all areas are appropriate for these new zones, but nothing in City of Winnipeg policy, neither the existing *Plan Winnipeg*, nor any other policy, indicates the places where they *would* be appropriate. With the exception of the C4 zone, none of the new

Figure 12: *Plan Winnipeg Policy Plate A, Land Use*



Source: City of Winnipeg 2002a

mixed use zones have been placed anywhere on a map; they exist in limbo, their possible locations to be determined at some later date.

There are likely existing properties in the city which already fit the proposed definition of mixed use in the draft zoning bylaw. Winnipeg's historical development patterns often included residences over retail, for instance. Perhaps locations or corridors where such mixed uses are already to be found in abundance could form a basis of future mixed use corridors, skeletal structures on which a mixed use urban form could be fleshed out over time. Winnipeg policy, ideally through *Plan Winnipeg*, should be offering these sorts of directions so that tools such as the zoning bylaw will not be limited by scant detail on how they should be applied.

The 'mix' of these mixed use zones is couched in the language of primary and secondary use. In RMU, commercial uses are to be "limited" and "small-scale". CMU "may include" multi-family housing, suggesting that mix of this sort is possible, but not really necessary. If the mixing of uses in the proposed zones seems conservative, then this is likely a reflection of the fact that *Plan Winnipeg* expresses support for the mixing of uses, but does nothing to indicate how much mix is appropriate. Bold steps cannot be expected of a zoning bylaw that is operating in an environment full of gaps in policy; any new implementation tool such as the draft zoning bylaw will inevitably reflect its lack of clear direction.

Nevertheless, Winnipeg is making a start with this zoning bylaw update, and that is a positive step in the right direction, at the very least in identifying the areas in which more policy direction is needed. But filling in the gaps requires support from politicians and the public. In the words of one focus group participant:

"We have a long way to go. Council needs to buy into these concepts before we can move forward in a big way... Council needs to consider smart growth concepts, and the bottom line is that most of this discussion needs to be driven by policy and the public needs to take an active role in the development of that policy" (Focus Group).

5.2 INTEGRATED PLANNING MODEL

During the research stage of this practicum, a report to Winnipeg City Council was identified, entitled *Toward an Integrated Planning Model* (hereafter referred to as IPM). This report was mentioned in passing as a “proposal” (Winnipeg Focus Group). All indications during the research stage had been that IPM had been a proposal only, and never adopted. As such, it had not been considered to be of great relevance to the directions of this practicum and was not pursued further.

Late in the stage of writing this practicum, however, it was discovered that this report had indeed been adopted by Winnipeg City Council on July 17, 2002. The report then became a City of Winnipeg policy and has been in the process of implementation ever since.

5.2.1 Intent

The IPM concept was put forward by former Winnipeg Mayor Glen Murray. The planning department had been “decimated” prior to his tenure as mayor, and he wanted to do something to reverse that trend and put planning back in a position of importance within the administrative structure. There was also a sense that there was a lack of integration between the activities of different departments, creating duplication of activities and a disconnection between the planning priorities of different departments. A more integrated organizational framework, it was hoped, would reduce these duplications and improve communication between departments, resulting in more efficient, coordinated and focused planning for the city. The mayor directed the Strategic Management Division of the Chief Administrative Officer’s (CAO) Secretariat to prepare the report (Winnipeg 1).

The report couches the problem it is attempting to address in terms of a disconnection between intentions and results. Winnipeg plans and implementation had, to some extent, become disjointed such that they were not always working together.

“Over time, the practice of planning can become muddled to the point where plans get developed with no means of implementation and regulations and programs exist with no obvious connection to a plan...There is merit in standing back and refocusing the planning function” (IPMAHC 2002, 5)

The report went on to propose a new philosophy for planning at the City of Winnipeg.

“The concept of integrated planning is really one of ensuring that there is shared vision and consistency in execution. In other words, all plans generated by the City of Winnipeg (long term city-wide plans, neighbourhood plans, etc) must be supportive of a common community vision. And, the means by which those plans are implemented (city programs, projects, partnership agreements, regulation, etc) must be clearly seen as advancing the goals of the plans. The community vision then becomes manifested in all of the activities we undertake on behalf of our citizens. To achieve this, planning must be pervasive and plans must be fully integrated. Ultimately, integrated planning means that all of our actions will consistently match our intentions” (ibid.).

5.2.2 *Report Recommendations*

In total, there are 25 recommendations made by *Toward an Integrated Planning Model*. Of these, a large number are focused on changes to service delivery and the regulatory side of the Planning, Property and Development Department (PP&D). These include recommendations such as the creation of two additional staff in the Community Services Department, and the delegation of authority for the issuance of conditional use applications to the Director of PP&D. Although important to the smooth functioning of the planning system in Winnipeg, such recommendations are of peripheral interest to this practicum.

The recommendations that relate most directly to this practicum, proposing greater integration of interdepartmental planning functions and a different approach to plans, are as follows:

Recommendation 1.1

The Director of Planning, Property and Development should be assigned the responsibility to act as special advisor to Executive Policy Committee (EPC) with regard to long range planning and development issues for the city.

Recommendation 1.2

A Planning Executive Advisory Committee (PEAC), with administrative support, should be established as a sub-committee of the Senior Management Team, chaired by the Director of PP&D and comprised of the Directors of Public Works, Water and Waste, Community Services, and Transit, with a mandate to:

- Review and advise on long range plans;
- Work closely with the CAO and Department Directors to ensure service delivery decisions are consistent with long range plans;
- Establish priorities for the development of secondary plans; and
- Provide early assessment of the merits and risks of major development proposals while they are still at the conceptual stage.

Recommendation 1.3

The City's primary long range planning document, Plan Winnipeg, should be reconfigured to better serve the needs of the organization by:

- Having Plan Winnipeg establish itself more fully as a long range development plan focusing primarily on land use matters and residing in PP&D; and
- Replacing Plan Winnipeg at the corporate level with a community vision document that provides strategic direction to the organization, reflective of the strengths and challenges facing the city and in keeping with the aspirations of the city's residents and business interests.

Recommendation 1.4

Capacity for planning should be enhanced through the allocation of 4 additional permanent full time positions in the Planning and Land Use Division as follows:

- 1 land use planner to undertake secondary plans;
- 1 neighbourhood planner to undertake neighbourhood plans; and
- 2 development planners to address development applications and assist with secondary plans.

Recommendation 1.6

Capacity for long range transportation planning should be built within PP&D by providing funding for a long range transportation planner to help coordinate city wide transportation policy, ensuring integration with land use policy.

Taken together, these recommendations can be seen to be pursuing three mutually-supportive goals: that capacity for pro-active planning be increased within PP&D; that PP&D, and the Planning Director in particular, be given a greater advisory role on issues related to planning; and that coordination between land use and transportation planning be improved and capacity for transportation planning be built within PP&D.

Also of interest to this practicum is Recommendation 3.1, which recommended the updating of Winnipeg's zoning bylaws to ensure consistency with adopted plans and policies and to simplify the development and review process. As mentioned earlier, this review is currently underway.

5.2.3 *Experience of Implementation*

Of the five recommendations from the IPM report having direct impact on this practicum, the results of implementation have been mixed. All five have been acted upon, with the exception of recommendation 1.1. Most of the Planning Director's dealings are with the Standing Committee on Planning and Development, and the Standing Committee on Downtown Development, a new committee created since the IPM report was adopted - though not as a result of the report (Winnipeg 2).

PEAC, of recommendation 1.2, has been created and has been a largely positive change, though it has had negative impacts in other areas with regard to the assignment of PP&D resources. The committee was created without resources allocated to administrative support, and the new Senior Transportation Planner, of recommendation 1.6, has been forced to split time between administrative responsibilities as secretary for PEAC and the transportation planning for which the position was created (Winnipeg 1). While the PEAC Terms of Reference (2003) suggest that the group would focus on long range planning matters, many of the items on the agenda of PEAC's monthly meetings have been more detail-oriented and reactionary in nature, discussing operational issues such as managing public expectations for municipal maintenance of back lanes (Winnipeg 1). Part of the reason for this is that the City of Winnipeg lacks a comprehensive land development plan, leaving *Plan Winnipeg's* broad strokes "open to

multiple interpretations at the more intermediate level of planning and at the implementation level” (Winnipeg 3).

Recommendation 1.3, the splitting of Plan Winnipeg into a land development plan and a corporate vision document has, at the time of writing, not yet occurred. However, a review of Plan Winnipeg is due to begin by the end of 2006, mandated by the provincial government, and it is expected that this review will be complete in approximately 2 years (ibid.). The Planning Director’s intent with regards to Plan Winnipeg is to do what IPM proposed. But splitting the document will need political support, currently uncertain with a relatively new mayor and council. Something must be produced, but whether it will be what was envisioned by IPM, or something else altogether is unknown, dependent on political factors (Winnipeg 2).

The creation of 4 new PP&D positions, to focus on secondary and neighbourhood planning, recommendation 1.4, was done quickly following adoption of IPM. In practical terms it has proven difficult to fill the positions with experienced staff; instead, junior staff members have taken the positions (Winnipeg 1).

Conceptually, IPM made sense, but practically it ran into some problems. The desire to get the Planning Director involved in advising more and more committees and focused on more high-level issues was at odds with the day-to-day demands of the job (Winnipeg 2).

A management consultancy firm, SEQUUS, was hired to create a strategic course of action in late 2002 for the IPM concept. This report found that the concept, without further organizational changes, placed too much added responsibility on the shoulders of the PP&D director (SEQUUS 2003). It proposed the creation of a Senior Manager of Operations position to deal with PP&D’s everyday operations: inspections, permits, and so on. This would allow the Planning Director to focus on more long-range issues. This position was created, taking advantage of the abilities of an engineer who had been overseeing the transfer of Winnipeg Hydro to Manitoba Hydro, and whose job was slowly being phased out as that integration proceeded. Last year, however, this position was eliminated because of budget constraints, and the situation for the Planning Director has reverted back somewhat to the situation where the Director is expected to be engaged

in long-range planning work while also managing the day-to-day responsibilities of the department (Winnipeg 2).

IPM has achieved better integration between departments, and created a unified voice at the senior management level. The idea was to stop different departments from working in silos. IPM sent an important message in that regard, and has resulted in improvement (ibid.). Personalities have still been a challenge, however, with different departments having different operational cultures and mindsets, making closer integration and communication difficult at times; closer integration has been a "learning process" (Winnipeg 3).

IPM had envisioned PP&D taking a leadership role within the organization. The fact that the Planning Director chairs PEAC is good in this regard. However, Planning has not become the most important department as IPM seemed to indicate. A result of PEAC, however has been that planning now occupies a respected place in the organization, as compared to before when "planning was sometimes considered a four-letter word" (Winnipeg 2).

Resources are also used more effectively now through better communication between departments. Duplication of effort has been reduced through a greater understanding of what is going on in each department, and the fact that departments are now more likely to work with, rather than against, each other (ibid.). Very recently, an internal document has been produced by an interdepartmental committee exploring the possibility of further integrating the transportation and land use planning functions of the City of Winnipeg (TLUPII 2006). This report even considers the combination of these two functions into a single work unit within PP&D. Practical considerations, such as the need for transportation planners to remain in contact with the day-to-day operations of the Public Works Department, resulted in this report recommending an improved communications model between land use and transportation planning, instead of complete integration. But although the report ultimately recommends against complete integration, the deliberations and collaborations of this report suggest that interdepartmental relationships have come a long way.

There are still major challenges, of course, most of which relate to available resources; the department is "starved of them", meaning that the work that goes on is

“largely reactive”. Winnipeg property taxes have actually been reduced in the last several years. While this may be good for the finances of the homeowner, it means the likelihood of funding pro-active planning projects becomes slim. It also means that knowledge necessary for good planning is not always available. Budgets, for instance, used to be put forward by Public Works to do trip origin and destination analysis, important for transportation planners to understand where the traffic flows are, so that the system can respond to what is actually happening on the ground. Denied funding for these studies so many times, Public Works finally gave up requesting the money. In the last several years, PP&D has started requesting the money to do these studies in their own budgets, but have likewise been denied by Council (ibid.).

5.2.4 *Lessons from the Integrated Planning Model*

Ideally, planners would be given the human and financial resources to plan effectively, comprehensively and with the long-range picture in mind. The City of Winnipeg would do well to reinvest in its planning functions, as both the experience of implementing IPM and general departmental functions have shown that planning is hamstrung when it is forced into a reactive mode due to lack of resources.

But when the resources are not readily available, creative allocation of what exists can help to fill the gaps, as well as efforts to improve communication and keep everyone speaking the same language. Transportation and land use planners do not necessarily need to be located in adjacent cubicles or united under the same bosses, but they do need to be working towards the same goals. Especially when resources are tight, changes to departmental structures and responsibilities have to be considered in the light of the capacity of individuals to meet new expectations, as can be seen with the overburden of demands on both the Planning Director and PP&D’s Senior Transportation Planner.

Of direct import to this research, the experience of IPM offers strong support to several of the practicum’s recommendations (to be discussed in the following chapter), namely that the current *Plan Winnipeg* model provides insufficient detail to guide transportation and land use planners in their work, and would be best split into two

different documents; and that greater integration of transportation and land use would significantly benefit planning in the Winnipeg context.

5.3 WINNIPEG FOCUS GROUP

N.B. Unless otherwise noted, all quotations in the remainder of this chapter have been taken from the Winnipeg Focus Group held in July 2006.

In July 2006 a focus group was held, composed of local planners, academics, and persons knowledgeable about local land use and transportation policy to discuss the potential for applying a sustainable transportation agenda to the Winnipeg context, possibly along the lines of the Toronto or Minneapolis approaches. Participation in this focus group, as mentioned in the introductory chapter, was not what was originally hoped for, and there were gaps in expertise, especially on the side of transportation planning and policy. The resulting discussion suggested many potential benefits for a move towards more sustainable transportation through changes to urban form, but some skepticism about the applicability of the Toronto or Minneapolis models to Winnipeg, for a number of different reasons.

5.3.1 *Benefits for Winnipeg*

The perceived benefits for Winnipeg of a more sustainable transportation system were similar in many respects to those laid out in other sections of this practicum, though several benefits particular to the Winnipeg context were identified.

Economically, there are numerous reasons why Winnipeg would benefit from a more sustainable transportation system. As for any city that moves itself primarily by automobile, Winnipeg is heavily reliant on fossil fuels for transport. But although Manitoba is energy-rich in the form of hydro-electricity, the amount of petroleum produced in the province is negligible; most of the money spent on gasoline or other fossil fuels leaves the city and the province. Relatively little money is recouped through

gasoline taxes as well: according to one participant, "with the exception of Alberta, [Manitoba] has the lowest taxes in Canada, set at 11.5 cents per litre".

While Winnipeg is not a centre for the automobile manufacturing industry, it is a major centre for the manufacture of passenger buses. With New Flyer Industries Inc. and Motor Coach Industries and associated suppliers operating in the city, a greater focus on public transit in Winnipeg would benefit locally-based companies.

Infrastructure, in the form of roads, bridges, sewers and water systems, and other physical elements that the City is responsible for, is a huge part of any municipal budget, whether for maintenance of that which exists, or new construction. Winnipeg has been struggling with an infrastructure deficit for many years, a shortfall between the combined cost of maintenance and construction and what is budgeted each year.

"Since the mid-90s, Winnipeg has spent huge sums of money expanding the regional street system, widening streets, bridges, underpasses, the list goes on. And at the same time it spent all this money, it couldn't sustain the infrastructure that it already had. So, sustainable transport doesn't remove the need for new infrastructure; we still need strategic investments in it. But it lessens the demand and allows us to redirect funds to maintaining what we already have".

Socially, an interesting benefit of a more sustainable transportation system is the role it could play in attracting and retaining immigrants. Winnipeg's future growth is expected to be dependent in large part upon international immigration, as it has been over the past several years. Winnipeg has gone from approximately "a decade of no growth [in the 1990s], maybe even shrinkage in some years, to actually having fairly decent growth, and that has been due primarily to the provincial nominee program. It has been the most successful in the country and has increased the number of international immigrants". The Manitoba Bureau of Statistics predicts that between 2006 and 2017, more than 82,000 new immigrants will arrive in Winnipeg, which accounts for nearly all of the predicted population growth over that period (MBS 2006). A transportation system that isn't totally reliant on automobiles is particularly important to new immigrants, especially when they first arrive in this country.

The 2001 Canada Census revealed that recent immigrants are much more likely to rely on public transit than the rest of the population. 24.5% of immigrants who had

arrived since 1991 used Winnipeg Transit to get to work, versus Canadian-born residents, of whom only 14.1% used transit (Heisz and Schellenberg 2004). This means that while public transit may not be a priority for many of a city's existing residents, a community concerned about its future ability to attract new residents might want to reconsider its position.

“Eventually a lot of these people buy cars and mimic the general population, but for the first couple of years, they are heavily dependent on the public transit in a city...we may attract these immigrants initially to Winnipeg, but the trick is not just to attract them, but to retain them”.

A more balanced transport system can help to do just that. It would help to make Winnipeg a more attractive place to come to in the first place, connect people to jobs, and make it easier to live and stay in the city. Apart from immigrants, a more balanced transportation system supports Winnipeg's existing residents that cannot afford to drive. As the city has spread and transit service has become less and less convenient, Winnipeg has ended up in a situation where more and more people are “trapped in neighbourhoods that they can't afford to move out of, but they are also isolated away from jobs”. Supporting alternative transportation, especially public transit, would reduce such problems of isolation.

From an environmental perspective, transportation is the City of Winnipeg's greatest source of greenhouse gas emissions (GHGs). *Plan Winnipeg* committed the City to reducing overall GHGs, but to date the City has not come up with an action plan to achieve a reduction in GHG emissions; “If the City is to have any hope at all of reducing its emissions, it's going to have to go towards more sustainable transportation choices”.

5.3.2 Challenges

To the suggestion that Winnipeg might pursue the creation of secondary plans for major corridors to encourage an urban form more supportive of sustainable transportation, the response was lukewarm. A major drawback is the dynamic of the real estate market in Winnipeg. Whereas the Toronto and Minneapolis regions are rapidly

growing, and Toronto has an established history with public transit and high-density living, Winnipeg was said to have a slowly growing market and a strong preference for suburban living. In places like Toronto and Minneapolis, the "market dynamics are very different...In Winnipeg [that market] doesn't even have legs yet".

On the potential educational benefits of such a planning process, there was also skepticism: "I don't put much stock in the value of education in getting people to change their housing choices". Rather, one participant suggested, it is important to offer different housing options, such as has been done with condominium development and loft conversions along Waterfront Drive, so that the potential for different lifestyles can then be imagined.

It was suggested that Winnipeg in fact has a successful history of building density along corridors; good beginnings that should be built upon:

"We have very effective transit corridors along Portage Avenue and Henderson [Highway], St. Anne's [Road] and to a lesser extent St. Mary's [Road]. It doesn't look fashionable, but it is exactly in structural terms what the new planning ideology calls for".

One of Winnipeg's shortcomings lies in not being rigorous enough in the application of principles. While positive steps have sometimes been made in terms of creating density along transit corridors, apartment buildings are not always located so sensibly: "I see big apartment buildings located in the middle of distant suburbs, surrounded by parking lots...and I wonder how we expect those people to be doing anything other than driving everywhere". This sort of situation was surmised to be a developer, rather than consumer, choice; a problem which might be solved by more planning direction, encouraging not just greater density, but greater density in the right locations. Winnipeg is "not all bad. We've done a lot of the right things, but we need to build on those".

This lack of rigour is evident in, and perhaps also rooted in, *Plan Winnipeg*, a document "full of all sorts of good motherhood statements, but...no measures". As the adage goes, 'you can't manage something if you don't measure it'. *Plan Winnipeg* proposes to do many things in support of a sustainable transportation system, but it offers

scant detail as to how the goals will be accomplished, and offers no detail whatsoever as to how Winnipeg will determine whether it is fulfilling those same goals.

Related to this problem, Winnipeg is lacking a major transportation plan. Instead, transportation issues are dealt with by *Plan Winnipeg*, but insufficiently so.

“There are certainly a number of policy voids in the city, which can be easily identified. Not having a major transportation plan is one of them. But you don’t really want that done separately from a major land use plan, either; you want it linked”.

The level of detail of the current plan is too broad to address what should be fairly straightforward questions such as how Winnipeg will connect new development with investments in infrastructure. Either *Plan Winnipeg* needs to become a much more comprehensive document that goes into much greater detail on land use and transportation policies, or it needs to require that different departments pursue that detailed planning on their own, ideally in cooperation with each other and with adequate budgets to carry out the work.

Political will to support the requisite change is lacking, manifested partly in a lack of support for the planning department. The planning department was “pretty well eviscerated under [former mayor] Susan Thompson, and despite some efforts by [former mayor] Glen Murray, it has never really been restored”. The lack of planning staff and funding for planning projects means that it is extremely difficult for the department to engage in any pro-active planning work. Neighbourhood plans, which are “taken for granted in other cities”, or possibly corridor redevelopment plans, as this practicum has investigated, are simply not possible; “We haven’t got the technical capacity or resources to do any of these sorts of things”.

The other side of the political coin lies in politicians supporting principles that they have theoretically committed to in *Plan Winnipeg*. In Winnipeg, you get “some politicians saying that we shouldn’t build at the edge [of the city], yet you get the very same politician not standing up in support of infill development”. The result is rhetoric that does not match reality: good planning principles and support for alternative

transportation can be found on paper, but very little positive change follows on the ground.

5.3.3 Cultural Shift Is Not Imminent

The focus group's skepticism with regards to the potential impact of a secondary planning and educative process like those being pursued in Toronto and Minneapolis can be tied to a relative lack of pressure felt in the Winnipeg context. Participants felt that changes to urban form would be "critical" to encourage different modes of transport; "You must have increased density, you should have mixed land uses to attract the population to increased density, and the design at the user end should make it more enjoyable, which would make it more usable". But the same participant then commented: "The question to me is, if we should have all these things, why don't we have them?"

Winnipeg's situation is such that it is still fairly convenient and affordable to travel by car for most of the population. Single family homes are also still very affordable, in comparison to other large Canadian cities. One focus group participant offered that "When you talk to Winnipeggers about what they like about Winnipeg, often the top two things they say are that it is affordable to buy a house, and that it's easy to get around, [able to get] anywhere in about 20 minutes by car".

Although some attitudes may be changing with the recent increase in prices for gasoline and other petroleum-based products, Winnipeg has not yet reached a point of crisis.

"We may have alarm bells going off in Winnipeg, but there is no real constraint. People can still build a house and so on. So unless we artificially constrain the situation, people's choices won't change".

5.3.4 Possible Solutions

The political problem was one for which few solutions seemed evident, though one participant did suggest that term limits for council members might be a help, in order

to open up opportunities to add new faces to City Council, thereby bringing in fresh ideas on a more regular basis.

With regard to planning approaches, however, solutions were easier to identify. The focus group felt that a combination of both carrots and sticks was needed, requiring developers to build more densely along transportation corridors and at nodes, and then rewarding the ones who do so.

It was suggested that it is important to remember that the manner in which we build cities is a result of choices: "A lot of what we have is due to choices, and those choices are made with logic, so it is a question of influencing that logic". This logic comes down, primarily to the cost of doing business, whether it is for developers or consumers. Therefore, if there is currently little market demand for higher density living in the inner city, the financial arrangements can be modified so that developers can build and sell units at a price that would be more attractive in the marketplace, or that would allow more affordable rental.

There may be sound financial reasons for a municipality to pursue such a strategy as well, by encouraging development that makes better use of existing infrastructure and services, offering the City potential cost savings.

"If a developer puts a development where they utilize existing infrastructure instead of creating new, why not have a development rebate in place of a development charge? If you can calculate how much that development will give back to the city in reduced infrastructure costs or money put into the fare box, provide for more efficient use of local services, why not come up with a number and give part of the savings back to the developer?"

There are complications to the concept, of course, such as in trying to quantify the financial benefit of any particular project to the City, and creating a reward formula that satisfies all parties. Assuming such details could be worked out, however, the panel seemed to agree that the idea had merit, rewarding not only developers, but also residents who make different housing choices. Such an approach could help to rebalance the housing market towards choices which offer more sustainable transportation options.

“If somebody wants to live alone in a far-flung suburb and drive alone at peak periods to work, that’s a private choice, but it creates a public cost...If someone wants to do that, that’s fine. But that person should pay the full cost of that private choice”.

Transportation demand management strategies are an element in the mix that Winnipeg has yet to give any serious attention to. The City could employ a transportation demand management coordinator to work on reducing the need to build new infrastructure. Such a coordinator could focus on strategies to increase carpooling, to reduce the shuttling of children to school by car, the establishment of car-sharing co-ops and so on. Much of the “demand for increased supply [can be] balanced by a reduction in demand from the opposite side of the equation”. Such an approach could also challenge new developments to address the sustainability of the travel behaviour that they create, requiring employers and major residential developments to file transportation demand management plans, encouraging programs such as rideshare in exchange for reduced parking requirements and so on.

Overall, comments tended to support greater integration of planning functions, combining the decision-making functions for land use and transportation, to ensure that decisions in one realm would not be made in isolation from the other. The details of what an integrated land use and transportation planning system would look like were not spelled out, but it was made clear that, although land use and transportation are inextricably linked, influencing each other heavily, the decision-making structures in Winnipeg are not designed to reflect that symbiosis, irrespective of recent efforts to more closely integrate planning functions. A sustainable transportation policy, it was suggested, could potentially be used as a motivating catalyst for the integration of these two aspects of municipal decision-making.

5.4 CASE STUDY DIRECTIONS

Policy documents in Winnipeg, from *Plan Winnipeg* to *Towards a Sustainable Winnipeg*, have recognized the need for more sustainable urban form and transportation. Unfortunately, while the policy concepts are often there, the details are often not, and the

action needed to create change has not followed. In the case of the Integrated Planning Model, initial steps have been taken, and significant improvements achieved within the administration. The extra-administrative element necessary for a real shift towards sustainable practices, however, namely political support from politicians and the public, continues to be lacking, hamstringing internal efforts.

The comments made by the focus group were encouraging in their support for the principles of this practicum; there was little equivocation with regard to the assertion that Winnipeg needs to take steps to improve the sustainability of its transportation system. However, participants also seemed quite clear on the fact that such change seems quite a long way off, and will require shifts in political mindsets, regulatory frameworks and planning models, market dynamics and societal assumptions about mobility.

The focus group only had so much to offer with regard to solutions, perhaps pointing to the fact that alternative transportation has not been an issue given careful consideration in Winnipeg, and perhaps also indicating the lack of transportation expertise of participants. The picture in Winnipeg is not entirely bleak: public transit, for instance, is functional in the city, if not necessarily a superior alternative to car use for most residents. With regard to improving the system, however, there are perennial discussions about rapid transit which never seem to reach implementation, and the debate stops there. *Plan Winnipeg* offers what appears at first glance to be significant support for alternative transportation choices, but does not manage to articulate the hows and the whys, and therefore nothing seems to have resulted from it.

Many comments made during the course of the focus group seem to suggest that there are, politically and in terms of Winnipeg attitudes towards urban form and transportation, too many things that need to change in Winnipeg before significant progress could be made on a sustainable transportation agenda. Planners may be able to contribute to shifts in political thinking by being consistent advocates for a different direction. Ultimately, however, the decisions are up to the elected officials; the domain of the planner is primarily in developing plans and implementation.

If this and the preceding 3 chapters are taken together, we can see a convergence of ideas. There are concepts of sustainable transportation planning that are not being applied in Winnipeg, and from which the city could greatly benefit. There is a lack of

consideration in Winnipeg planning policies and processes to how land use and transportation fit together, and what type of urban form Winnipeg should have, whether at a macro or micro scale. Many cities in North America and elsewhere are attempting to achieve more sustainable transportation systems through the integration of land use and transportation planning functions, investments in alternative transportation infrastructure, and through changes to urban form to support alternative transportation choice, especially by increasing density, mixing uses and pursuing supportive urban design along transportation corridors. The next chapter will attempt to synthesize these ideas into recommendations for changes to Winnipeg's planning policies and processes in order to imagine how Winnipeg might achieve similar changes.

6 ADAPTING WINNIPEG PLANNING POLICIES AND PROCESSES

At present, *Plan Winnipeg* is meant to be all things for all purposes, but clearly is not up to the task in all areas. Reorienting Winnipeg policy towards a sustainable transportation agenda will require the adaptation of existing plans and policies and, ideally, would involve more municipal commitment to planning generally, and the filling of policy voids through the development of new, more specific plans in areas such as transportation and land use policy.

This chapter will propose greater integration of transportation and land use planning functions, a more detailed and hierarchical plan infrastructure than currently exists in Winnipeg, and a zoning bylaw which follows the lead of a sustainable transportation-oriented municipal plan. It will also propose a public engagement and education approach that will serve to inform the public about the benefits of a different kind of transportation system and urban form, and elicit contributions from the public about how and where that system and urban form should take shape.

6.1 INTEGRATING LAND USE AND TRANSPORTATION PLANNING

A basic recommendation is to connect transportation and land use planning functions at the City of Winnipeg as closely as possible. If transportation and land use have a relationship that is inextricably linked, then planning for both should be done in tandem, with connected and complementary policies and processes. This may be possible by having two separate departments which collaborate closely with one another, or by combining the two functions into a single planning unit. If only the interests of integrating land use and transportation planning were considered, the ideal scenario would be the combination of the two functions.

As seen in the Winnipeg experience of implementing IPM, however, other considerations need to be taken into account, such as the practicalities of integration:

transportation planners need to maintain contact with the implementers of their plans, just as land use planners need to maintain contact with those reviewing development.

Considering the work already done through IPM, the integration of land use and transportation planning within the City of Winnipeg organization has already gone a long way, and it appears that the benefits of increased connectivity in the way plans are both formulated and implemented is beginning to be seen. Where integration is desired but physical co-location is determined not to be feasible or desirable, improving communication and ensuring that planners are involved at the right times are appropriate fallback positions. The City of Winnipeg appears to have made great strides in this area.

What remains, however, is bringing staffing and budgets up to a level that allows planners to implement IPM's recommendations fully. Examples of identified funding needs are the provision of administrative support for PEAC to increase the capacity for transportation planning work to be done within PP&D, and the allocation of resources to the Senior Manager of Operations position to increase the ability of the Director of PP&D to address long-range planning issues. This practicum does not presume to understand all of the funding needs of planning at the City of Winnipeg, as this has not been the focus of the research. Nevertheless, it appears that increased funding may be a necessary precursor to create capacity for the more involved and pro-active planning activities being advocated here.

6.2 IMPLEMENTATION PLANS – THE MISSING TIER

Many cities develop transportation plans as a way of determining long-range visions for transportation systems, laying out priorities and determining where and when investments will be made. Winnipeg has been without such a plan for some time. As mentioned in the previous chapter, *TransPlan*, the last attempt at a transportation plan, was never adopted by Winnipeg City Council. From the perspective of sustainability, it is perhaps a good thing that the plan was never adopted, as it contained little in support of sustainable transportation goals. But it has meant a lack of detail and clarity in Winnipeg transportation policy.

In the interests of ensuring that transportation and land use decision-making are integrated, directing transportation planning through a municipal development plan is a sensible idea. The only problem with the approach as practiced in Winnipeg is that *Plan Winnipeg* is quite generalized with regard to both transportation and land use planning. Although it goes so far as to lay out in Policy Plate A the locations for regional commercial and mixed use concentrations, and in Policy Plate B the locations for future rapid transit corridors, the two do not overlap in all areas, and *Plan Winnipeg* offers scant detail as to how, where and when its policy prescriptions for either land use or transportation will be carried out. If the plan is not offering adequate guidance, then either the model for *Plan Winnipeg* needs to be changed, or the plan needs follow-up policy documents to fill in the details.

“What you have [in *Plan Winnipeg*] is a corporate vision document. It goes into things well beyond land use and development, things like policing. It’s fine to have a vision document, but what you really need is a much more detailed land development plan, which would have some growth management elements as well. That would combine land use and transportation better, and provide guidance to planners and decision makers at the city as to where does transit need to go, where are those employment areas, and so on” (Focus Group).

6.3 REFOCUSING PLAN WINNIPEG’S VISION

The handicap of the current *Plan Winnipeg* has been identified as its attempt to do too many things at once, trying to be a corporate vision document and municipal development plan all wrapped into one. Instead, as has been suggested by IPM, there should be two levels of plans: at the top would be a corporate vision document that touches on all aspects of Winnipeg life and presents general guiding principles for each, such as Winnipeg’s desire to offer a high quality of life to all of its citizens, and how that would be defined. This corporate vision document could be entitled *Vision Winnipeg*. A second tier of implementation plans would then articulate the specific strategies by which these overarching goals would be met.

This is not an unusual practice for municipalities: section 1.6.1 of *Plan Edmonton*, for instance, directs that Edmonton will “develop a comprehensive, integrated plan for

the river valley, natural areas and open space lands” and then discusses a general vision for such a plan, but does not touch on implementation, nor does it exhaustively discuss all of the specific goals it should address (City of Edmonton 1998).

Vision Winnipeg could include similar directives for implementation plans wherever they were needed, but specifically for the purposes of creating an implementation plan to address integrated transportation and land use issues. It could also require that any implementation plans mandated by *Vision Winnipeg* have provisions for regular monitoring and adjustment of implementation strategies if goals were not being met.

A secondary development plan which addressed the land use and transportation directions sketched out in *Vision Winnipeg* could then be produced. This document would become the new *Plan Winnipeg*. Addressing both land use and transportation issues in detail through a single implementation plan is important to ensure the two functions have a united policy and implementation framework.

Although this general idea of splitting *Plan Winnipeg* has been identified as City policy by IPM, it is yet to be determined whether the upcoming review of the plan will follow that direction or not. In the interests of good planning, it should move forward.

6.3.1 *Modifying the Plan Language*

A new *Vision Winnipeg* would be able to focus on principles, and leave the details of implementation to the subsequent, focused *Plan Winnipeg*, the creation of which it would require.

Section 3A of the existing *Plan Winnipeg*, “Planning for Growth and Change”, says many of the right things with regard to supporting alternative transportation options. It supports the promotion of compact urban form, the integration of land use, urban design and transportation planning and the protection of traffic flows from significant increases through the direction of “new development with high intensity uses to locations that are supported by transit” (3A-04, ii). But while the sentiments are there, the plan is lacking two important elements: 1) a description of the kinds of development that are not acceptable, and 2) a clear vision of how these goals will be accomplished.

Section 3C-01, currently titled "Provide Integrated Transportation Network", could be retitled "Provide Integrated Transportation and Land Use System". This section as currently written lends support to alternative transportation options, but it does so in language that is often equivocal.

Rewritten, it would direct that alternative transportation options such as walking, cycling and transit be placed in an equal position relative to automobile traffic for planning purposes, and that funding for comfortable, attractive and functional pedestrian and cycling routes and public transit infrastructure be adequate to attain this goal. This would not mean that pedestrian infrastructure would need to receive 25% of funding, cycling 25% and so on, as different modes have differing demands for infrastructure. However, each mode of travel would be planned for as a viable option, and monies disbursed adequately to achieve that goal. Over time, as infrastructure became established, and different modes gained modal share, funding would perhaps be able to approach something resembling balance, as overall demands for automobile infrastructure decreased and that for walking, cycling and public transit increased.

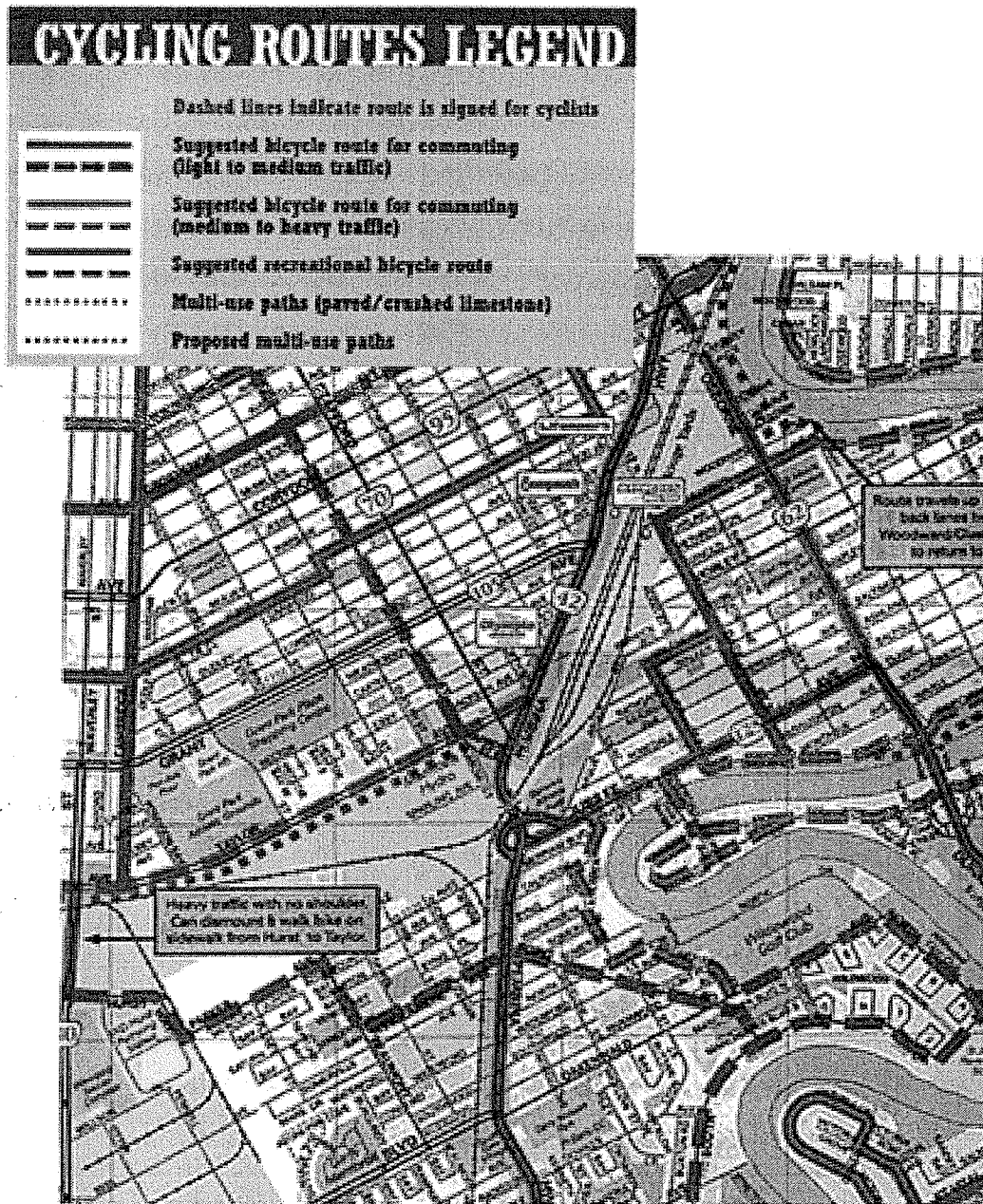
Vision Winnipeg would connect alternative transportation with alternative transportation-friendly urban form characteristics, to be pursued under land use planning mechanisms. It would require that a new *Plan Winnipeg* ensure that new development or redevelopment be compatible with and supportive of alternative transportation options, and would require the same in reverse for transportation investments. The details of implementation for these directives, again, would be laid out in the new *Plan Winnipeg*.

Section 3C-01, sub-section iii, states that the City will "[improve] cyclist comfort on the arterial street system through the expansion of curb lanes and the establishment of cycle lanes where feasible". Unfortunately, it does not direct municipal departments as to what constitutes 'feasibility'.

A quick perusal of the Cyclist's Map of Winnipeg reveals that, although there are 110 km of signed cycle routes in the city, only a tiny proportion of this system involves exclusive lanes. Multi-use trails, where they do exist, are often more practical for recreational cycling than running errands or work commuting, as they are separate from major routes, and sometimes incomplete or confusing in their routing. The commuter routes suggested by the Cyclist's Map, often on major roads, rarely offer cyclists the

comfort of their own lane. This begs the questions: what is considered feasible, and is anything actually being accomplished?

Figure 13: Excerpt from Winnipeg Cyclist's Map



Source: Manitoba Cycling Association website

A new *Vision Winnipeg* would make the establishment of comfortable and practical city-wide cycling routes a goal, and allow a new *Plan Winnipeg* to determine

where those routes should be placed, and what strategies would work best. The 'feasibility' of different implementation strategies could be determined by the relevant department, but the overall goal of creating a functional system would remain.

The preceding paragraphs are but a handful of examples of how a new *Vision Winnipeg* would approach a sustainable transportation agenda. Its role, in any situation, would be to establish broad-stroke goals for the establishment of sustainable transportation infrastructure and for the attainment of the attendant urban form characteristics of increased density, mixed uses and supportive urban design.

6.3.2 *From Measureless Indicators to Calculable Targets*

Indicators in the current *Plan Winnipeg* are vague and can be accomplished with only minimal changes to the existing practice. The current indicators for the existing *Plan Winnipeg*'s third chapter, "Planned Development, Transportation and Infrastructure" are as follows:

- transit ridership and bicycle usage is increasing
- the amount of infill development is rising
- capital expenditures on alternative transportation is rising relative to expenditures on new road construction
- the maintenance of residential streets is improving

These indicators go in the right direction, but do not quite hit the target. The shortcoming is in leaving too much open to interpretation: transit ridership and bicycle use could proceed apace with the increase in population, with no relative improvement over other modes, and this could still be interpreted as being a positive indication; or a handful of new developments in the inner city could be occurring while hundreds of older buildings were being condemned or demolished, and infill development could still be interpreted to be on the upswing. Alternative transportation expenditure, perhaps the most useful current indicator, offers no benchmark, no idea of how much expenditure represents a meaningful change. For example, if the budget for alternative transportation investments were to increase from 1% to 2% of the total transportation budget over a 10 year period, would this be satisfactory? Instead of indicators, a new *Vision Winnipeg*

would establish targets which would be clear and measurable, and which would represent a palpable improvement over the status quo.

In setting targets, a new *Vision Winnipeg* might, for instance, set out a timeframe for reaching a certain proportion of modal share for each mode, or it might set a target for overall transit ridership numbers, a certain percentage higher than current levels. Since a rebalancing of the transportation system and the offering of modal options is the primary interest of this practicum, it is recommended that modal split targets be laid out, as has been done in Vancouver's *CityPlan*. *Vision Winnipeg* could indicate a commitment to the establishment of a rapid transit system, as with the current plan, but could leave the details of how targets would be achieved to the implementation strategies of a new *Plan Winnipeg*.

Something that *Vision Winnipeg* would direct firmly and clearly would be that land use decisions be tied to the strengths of the existing transportation system, where sustainable transportation is concerned, especially major transit routes. Transit centres and major transportation routes with an existing high level of transit service would be the most appropriate areas for redevelopment to occur and for public investment in alternative infrastructure. These types of locations would be the most important places to encourage all of the urban form changes advocated by this practicum: higher density development, a mixture of uses and urban design supportive of pedestrian, cycling and public transit use.

Targets for urban redevelopment would be important here as well, to give the corporate vision teeth and guide the implementation policies of a new *Plan Winnipeg*. Provincial directives in Ontario have mandated that by 2015, 40% of development in Toronto and other municipalities will occur in already built-up areas. Winnipeg could set targets along these lines, though it could require a different percentage if need be. The provincial government could be lobbied to make Winnipeg's approach a province-wide policy, so that Winnipeg would not have to forge ahead alone, to avoid regional inequities in development policies and standards.]

6.4 A NEW PLAN WINNIPEG – IMPLEMENTING THE VISION

This plan would offer the level of detail lacking in the current *Plan Winnipeg*, and also clearly connect the yin and yang interactions of transportation and land use. Such a plan would discuss in detail strategies for implementing a sustainable transportation agenda, instead of dealing with the issue here and there but without clear focus, as is the case in the current *Plan Winnipeg*.

The caution from the Minneapolis precedent, warning that the Corridor Housing Initiative model may not be appropriate for communities that are not facing development pressure, is important to consider, but this does not mean that planning for the character of redevelopment is not necessary in the Winnipeg context. The city, while slow-growing, does experience redevelopment in existing neighbourhoods, and the current *Plan Winnipeg* is clear that the health and vibrancy of downtown and existing neighbourhoods is one of its primary goals. In consideration of a sustainable transportation agenda, this redevelopment needs to be designed within a policy framework.

If an intensive corridor planning exercise such as those being done in Minneapolis or Toronto is not the most appropriate approach, there may be another idea better suited to Winnipeg's development context. The Toronto commentator's suggestion of a city-wide typology, laying out what kinds of redevelopment are appropriate in what kinds of locations, considering the type of street, the character of the existing buildings and surrounding neighbourhood, may be useful for a city experiencing modest and dispersed redevelopment activity.

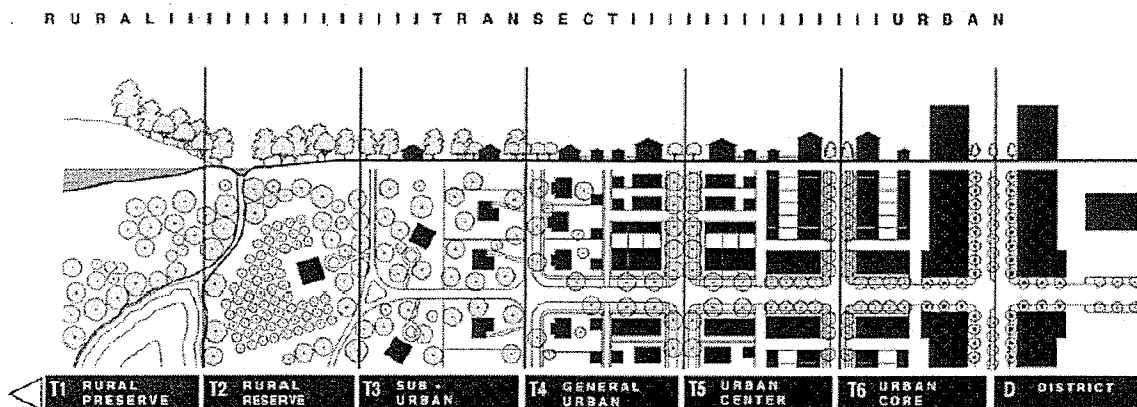
The implementation plan would redevelop the City's street classifications to include a new type: the multi-modal corridor. Such corridors would be the connectors between nodes that are considered in a modified TOD concept of nodes and corridors. Alongside the standard arterials, collectors and local roadways, multi-modal corridors would be a central component in the transportation network, running across the city and intersecting with one another. The major, cross-city multi-modal corridors would need to accommodate all forms of transport, though local street classifications could be developed for corridors meant to exclude automobile traffic, to prioritize pedestrian

traffic, and so on. The routes that major multi-modal corridors would occupy would need to be determined by *Vision Winnipeg*.

6.4.1 City-Wide Typology

The Toronto precedent study presented the concept of a city-wide typology that would determine what types of locations would be appropriate for what types of development. The Congress for the New Urbanism (CNU) offers a possible model which could be adapted for use in the Winnipeg context. CNU's *SmartCode* model zoning system uses something called the 'transect' to address the problem of deciding what types of development are appropriate in different urban locations. A transect is an ecological concept that visually demonstrates how different natural environments are ordered on a progressive scale from rural to urban habitats. When applied to a zoning system, a transect defines where, within a progression of six rural to urban environments, called 'transect zones', a particular form of building would be properly situated. A transect-based zoning code does not prohibit uses but rather organizes them into the transect zone most appropriate to their form and overall urban context. This means that "the transect does not eliminate the standards embodied in present zoning codes; it merely assigns them to the sections of the transect where they belong" (Emerson 2006, 7).

Figure 14: The Congress for New Urbanism's transect



Source: Duany *et al* 2006

The transect “embodies the view that the crisis of metropolitan form is not one of too high density or too low density, but is an inappropriate mixing of elements, elements that need to be reintegrated in a more suitable way” (Talen 2002, 310). Incorporating the transect idea into the Winnipeg Zoning Bylaw would create city-wide districts that would guide the types of redevelopment that are appropriate for different areas of the city, depending on criteria that would be set out in a new *Plan Winnipeg*. It would identify locations appropriate for intensification and how redevelopment would integrate with that which already exists.

Much like the Avenues and CHI planning processes in Toronto and Minneapolis, the creation of transect typologies for Winnipeg could be developed in collaboration with Winnipeg citizens. The difference between the two approaches, however, would be that the Winnipeg typology, rather than identifying the types of development appropriate for a single street or neighbourhood, would apply to the entire city, categorizing the city based on existing conditions and future land development plans. A new *Plan Winnipeg* would organize its development directives around a planned urban structure, as in Toronto or Minneapolis, and then determine the detailed development characteristics for different types of urban condition in collaboration with citizens. The approach could achieve similar results as have been seen in the two precedent cities without the same level of funding and resources needed to do the work. Certainly, such a typology would be less rooted in a specific street or neighbourhood context than the projects in Toronto and Minneapolis, but seems appropriate considering the more modest development pressures facing Winnipeg neighbourhoods.

6.4.2 *Following Sticks with Carrots*

In addition to the regulatory sticks to be set out in *Vision Winnipeg*, incentive carrots would need to be included in the new *Plan Winnipeg* to make the mandated development more attractive to developers.

“Use carrots and sticks. Developers will only build what works on the balance sheet, because they are developers. That is their business, so why wouldn’t they increase their profits?...I would say that you have to raise

the bar, it has to be fair and you can't pit one against the other. It has to be in policy, it has to be in rules, and then you have to reward them" (Focus Group).

Redevelopment in existing areas would be a financial boon to the City, increasing the tax base while making better use of existing infrastructure, so it seems reasonable to return some of that increased revenue back to those new developments creating the revenue.

The mechanism for this sort of tax transfer is already available to the City of Winnipeg. The City of Winnipeg Charter Act was amended in 2002 to allow tax increment financing, allowing Council to establish by by-law "tax increment financing programs in designated areas of the city for the purpose of encouraging investment or development in those areas". Section 222(2) of the City of Winnipeg Charter Act allows that a tax increment financing program may provide:

- (a) that some or all of the incremental taxes coming from the designated area be placed into a reserve fund;
- (b) that money in a reserve fund is to be used
 - (i) to give financial assistance to persons who invest in developing or constructing property in the area,
 - (ii) to fund a grant, loan or tax credit program in the area for persons who invest in developing or constructing property, and
 - (iii) to benefit the area by acquiring, establishing, constructing, improving, maintaining, operating, providing and equipping works, services, facilities and utilities of the city; and
- (c) for any other matter that council considers necessary or advisable.

In order to jump-start such a process, it might be necessary for City Council to provide some initial grant funding to increase the attractiveness of initial development for designated redevelopment areas. Following the first few redevelopment projects, however, future subsidies, grants or tax credits would be paid for by the increased tax revenues collected in the regenerating area.

As a construction incentive, a certain amount could be given to a developer based on how many residential units are being constructed. Or it could be much more complex, calculating carefully the estimated increase in revenue over costs that a particular development represents, and returning to the developer a certain portion of that increase.

Attempts could also be made to reduce the permitting costs of infill developments and increase charges to develop on greenfield sites. Regardless of the formula, an incentive or disincentive scheme would need to be designed to make infill redevelopment attractive enough to developers that the pressure from the City to consider grey- and brownfields over greenfield sites was not a losing proposition. The most appropriate strategies would be identified in the process of developing a new *Plan Winnipeg*.

6.5 MODIFYING THE WINNIPEG ZONING BYLAW

The Comprehensive Review of the Winnipeg Zoning Bylaw project webpage states that its mandate is to “improve the development system in Winnipeg” and to create a bylaw that will “reflect current industry standards and improve customer service by streamlining administrative processes” (Winnipeg Zoning Bylaw). While these goals may be worthwhile, a zoning bylaw is also an important implementation tool for goals laid out in municipal plans, and the most important tool for implementing land use policy. A new *Vision Winnipeg*, strengthened by a detailed implementation plan in the form of a new *Plan Winnipeg*, would also require a zoning bylaw carefully designed to implement its policy directions.

6.5.1 Mixed Use Corridors

The current draft bylaw has inherited some of the imprecision of the existing *Plan Winnipeg*, creating several new zones, but as of yet not identifying them on maps. The current *Plan Winnipeg*’s ‘Areas of Regional Commercial and Mixed Use Concentration’ are obvious candidate locations for the new mixed use zones, and would be appropriate ones. However, the research for this practicum has indicated that nodes such as these could be greatly strengthened if connected by densely developed, mixed use, multi-modal corridors. The draft zoning bylaw indicates that the CMU zone is appropriate for use “along selected corridors and at important nodes in the city” (48). In addition to the nodes, such corridors would be identified.

The City may not be inclined to unilaterally rezone existing properties exhibiting mixed use characteristics, because of the implications for property rights; owners apply for rezoning, not the City of Winnipeg. But new zones such as RMU and CMU will be more likely to be taken up if it is possible to point to demonstrable examples that already exist within the city. The new zoning system could make showcases out of what were previously oddities: non-conforming uses. Mixed use buildings, wherever they exist in the city, could be given the option to have their zoning changed to reflect the intentions of the newer, more progressive zoning bylaw.

The identification of appropriate corridors for mixed use, higher density development with multi-modal traffic would allow the City to go one step further in its zoning than has been possible in the current bylaw update. The draft zoning bylaw proposes the redesignation of the C3 district as an automobile-oriented service corridor, the intent of which is described as follows:

“The Commercial Corridor (C3) district is intended primarily for uses that provide commercial goods and services to residents of the community in areas that are dependent on automobile access and exposed to heavy vehicle traffic, but not include regional shopping malls or shopping areas. These commercial uses are subject to frequent view by the public and visitors to Winnipeg, and they should provide an attractive appearance with landscaping, sufficient parking, and controlled traffic movement. C3 districts are generally located along portions of arterial streets where lot depths are 200 feet or greater, or at arterial/arterial intersections” (48).

Many such streets (as this passage describes) already exist in Winnipeg. The challenge now is to establish a different kind of zoning district, and also a different kind of corridor, so that the following district description might be possible:

The Mixed Use Corridor (MUC) district is intended to accommodate the development of medium- to higher-density residential and commercial development, providing housing, offices, shops, services and entertainment uses to the community in areas that are characterized by multi-modal access and exposed to heavy pedestrian, cyclist and transit traffic. These mixed uses are subject to constant view by the public and visitors to Winnipeg, and they should be attractive and functional, providing landscaping, visually engaging design, and the enhancement of multi-modal traffic needs. MUC districts are generally located along multi-modal streets or multi-modal/multi-modal intersections.

Such a description does not banish automobiles from the streets, but rather recognizes an environment in which other modes of transport are important elements. A mixed use corridor zone would not only accommodate, but include, measures to support the viability of alternative transportation options.

An MUC district would have to have development and design standards created for it which reflected the mixed residential and commercial uses allowed there, and the differing needs of multi-modal traffic on the multi-modal corridors. Multi-modal streets would require development that catered first and foremost to the pedestrian, in terms of access and design, as the sidewalk would be the primary interface between a building and the public realm. A city-wide redevelopment typology, developed as part of the Integrated Land Use and Transportation Plan, would guide the creation of development and design standards for this zone, including design guidelines to direct appropriate transitioning between different zoning districts.

A planning process in Charlotte, North Carolina, which resulted in the creation of Urban Streets Design Guidelines, engaged Charlotteans through stakeholder interviews and surveys to determine what role they wanted their streets to play, what design features they liked or did not like about them, and generally how to accommodate the movement needs of users beyond just drivers of automobiles, using as a starting point for discussion the Complete Streets concept of the United States' Institute of Transportation Engineers (City of Charlotte 2005). A similar process of engagement could be pursued to define the design and functional details of mixed use corridors, and perhaps could serve to guide the design of streets all over the city as well.

6.5.2 Urban Design Standards

Another proposed modification to the Winnipeg Zoning Bylaw would be the incorporation of urban design standards relating to urban form and transportation. Winnipeg's draft zoning bylaw already incorporates certain urban design requirements, but does not go very far to address pedestrian amenity, cycling or public transit interests. The proposed CMU zone, for instance, which envisions primarily commercial uses with a

secondary residential component, is to be governed by minimum front, side and rear yards, maximum height and floor area ratio. Commercial developments must address pedestrians and cyclists in the following manner:

Paths and Pathways

(i) where applicable, pedestrian and bicycle paths and pathways must be developed where indicated in any plan adopted by the City Council and must be designed and developed to adopted City of Winnipeg Public Works Department standards;

Pedestrian Connections

(ii) all principal entrances of principal buildings must have direct access (i.e. access without having to cross a public street) to a sidewalk, walkway, path or pathway that leads to a public street. Each such sidewalk, walkway, path or pathway must be a minimum of five feet wide; and

Bicycle Access

(iii) Bicycle access routes must be provided between public bicycle lanes, paths or pathways and on-site bicycle parking areas. Sites should be designed to avoid or minimize all conflicting bicycle/motor vehicle and bicycle/pedestrian movements. All bicycle paths and pathways connecting to the City's path and pathway system must comply with adopted City width standards.
(City of Winnipeg 2006, 149)

The result is a mandated minimum: alternative transport is not forgotten, but neither does it appear to be a major organizing element. In contrast, Vancouver's zoning bylaw attempts to improve the pedestrian and cyclist environment by requiring the following in its C-5 and C-6 zones, high density mixed use commercial zones:

- 4.17.1 All developments shall provide along all abutting streets any one or a combination of display windows, individualized tenancy unit design, building articulation, pedestrian entrance definition via a recess or projecting canopy or any other architectural features which facilitate pedestrian interest to the satisfaction of the Director of Planning.
- 4.17.2 The first storey shall be built to the front and side property lines except as noted in sections 4.4.1 and 4.5.1 while the remaining storeys may terrace back from the property lines.
- 4.17.3 Direct pedestrian access at the fronting street at or near grade level

to each individual commercial occupancy which abuts the fronting street of a development site shall be provided.

4.17.4 Continuous weather protection having a minimum depth of 1.5 m in the form of a retractable fabric awning, a canopy attached to the building face by bolts to facilitate easy removal, or other forms satisfactory to the Director of Planning and City Engineer shall be provided along the fronting street and flanking street where the adjoining site on the flanking street is in a C district.

4.17.10 Dwelling uses shall provide:

- (a) pedestrian access separate from access to other uses;
- (b) a minimum of one bicycle rack per four dwelling units in an enclosed storage room.

(City of Vancouver 2000, 9)

The difference is palpable. While Winnipeg's bylaw mandates the provision of infrastructure, it gives little direction as to how buildings should relate to the street, or the role alternative transportation options should play in the design and siting of buildings. Vancouver's bylaw places alternative transportation modes in a position of importance, requiring that buildings be built to the edge of the lot, that they positively affect the pedestrian environment through their design and include amenities such as secure bicycle storage to facilitate alternative transportation choices.

6.6 PUBLIC EDUCATION AND ENGAGEMENT

The 'transformative' nature of the Minneapolis initiative was based largely on the fact that it engaged the public in terms they could understand, and in a pro-active way: the planning process was undertaken in advance of any particular development proposal, allowing discussion to take place without the threat of imminent change. Winnipeggers should be similarly engaged by transportation and land use planners to, on the one hand, be given a broader perspective on the problems associated with the current transportation and land use system, and on the other hand, to allow Winnipeggers to influence the way in which sustainable transport and urban form could unfold across the city at the local level.

The City of Calgary's Planning Education Program and the City of Edmonton's Planning Academy (PEP; Planning Academy) are public education outreach programs

offered by those cities' respective planning departments that aim to inform community leaders and the interested public about the planning and development process. Such an outreach program, adapted for the Winnipeg context and with sustainable transportation as a central theme, could be useful for building up a larger public knowledge base about planning concepts, potentially making a second phase of community engagement, community involvement in the creation of a city-wide typology or area redevelopment plans, more fruitful.

Another educational and pro-active engagement approach might be community-based social marketing, a term used by environmental psychologist Doug McKenzie-Mohr to describe efforts to impact behaviour at the community level through personal contact. The emergence of community-based social marketing is traced to "a growing understanding that programs which rely heavily or exclusively on media advertising can be effective in creating public awareness and understanding of issues related to sustainability, but are limited in their ability to foster behaviour change" (CBSM website).

Community-based social marketing can play a supportive role for broader programs. In Boulder, Colorado, for instance, a municipal attempt in the early 1990s to shift modal share away from cars towards walking, cycling and transit involved advertising, increased transit service and pass subsidies, and investments in pedestrian and cyclist infrastructure. In addition to these common strategies, however, the municipality also employed community and school-based events, such as the 'Non-Polluting Commuter Race' and the 'Find Another Way Day', which provided citizens with opportunities to experience the "availability, practicality, and benefits of non-habitual modes of travel". Commuter Challenge, a yearly event occurring during 'Environment Week' (early June) and coordinated by Environment Canada, encourages employees of participating workplaces to find another way to work. Participation is voluntary and organized through volunteer 'Team Captains' in each participating workplace who enlist participants and personally encourage them to use alternative transportation (Tools of Change website).

Increased knowledge, of course, does not ensure agreement or changes in behaviour. But increased knowledge can set the stage for informed discussion and

decision-making. If public education strategies such as Edmonton's Planning Academy, or community-based social marketing strategies such as those used in Commuter Challenge, were employed in support of alternative transportation policies in *Plan Winnipeg*, it might translate into greater public support for a sustainable transportation agenda. This would hopefully impact decision-makers through increased public pressure for change, potentially contributing to the 'cultural shifts' that appear to be in progress to varying degrees in Toronto and Minneapolis.

6.7 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) strategies have been identified in the research in this practicum as possible strategies for Winnipeg to increase the viability of alternative transportation, or at the very least to encourage more efficient use of existing infrastructure. Although they fall slightly outside of the relationship between alternative transportation and urban form, they merit mentioning as possible complementary strategies that could help to make alternative transportation options more attractive.

Common TDM strategies include incentives and disincentives to single-occupancy vehicle use such as: congestion pricing and road tolls; high-occupancy vehicle priority lanes for transit, taxis and private vehicles with multiple occupants; speed reductions; parking pricing, either increasing the cost of already-priced parking, or introducing charges on parking that was previously offered free to the user; or pay-as-you-drive insurance, in which drivers are charged by the kilometer driven, rather than a flat monthly or yearly rate. These strategies generally aim to either increase the occupancy of the vehicles that are on the road, thereby increasing the capacity of the system, or to reduce the attractiveness of the automobile so that drivers will be pushed to consider alternative transportation options that have been made cheaper, faster or both (VTPI website).

The creation of a TDM staff position at the City of Winnipeg would offer someone on staff to coordinate TDM strategies. Pursued in tandem with the land use measures described in this practicum, TDM might serve as an interim measure, making

better use of the existing transportation network, and preparing Winnipeggers by encouraging them to consider alternative transportation arrangements. Many Canadian cities are hiring TDM specialists, including Ottawa and London, Ontario, and Edmonton (City of Winnipeg 2005; City of London website; City of Edmonton website).

6.8 CONCLUSIONS

The adaptation of Winnipeg planning policies and processes to reflect a sustainable transportation agenda would require a comprehensive rethinking of the way planning is done in Winnipeg. A first, and not insignificant step, would be the improved integration of transportation and land use planning functions to ensure that the two are operating in concert with each other. This recommendation has in fact already been acted upon to a certain extent by the City of Winnipeg. Although it has had some success, increased resources would improve the impact of this project.

The current *Plan Winnipeg* should be split in two, with a new corporate vision document, *Vision Winnipeg*, refocused on general principles and leaving the details to a more specific implementation plan, a redeveloped *Plan Winnipeg*. This recommendation, too, has already been proposed for the City of Winnipeg. It should be implemented.

A new *Vision Winnipeg* would set benchmarks for alternative transportation to be achieved within the timeframe of the plan. This would take the form of modal split targets that would indicate a balancing of the transportation system, away from the dominance of the car towards a greater mix of modes for all trips. The strategies for achieving such targets would be detailed in a new *Plan Winnipeg*.

A new *Plan Winnipeg* would focus on implementation strategies to achieve the improved urban form identified in *Vision Winnipeg*. Strategies would include the creation of a city-wide typology to identify the types of development most appropriate for different areas of the city, based on current form and future plans. Tax increment financing, a tool already available to the City of Winnipeg, would be employed to direct development to desired areas, as well as other incentives, where appropriate.

A new *Vision Winnipeg* would require a zoning bylaw that reflects and enables its priorities with regard to land use, reflecting the implementation strategies laid out in a

new *Plan Winnipeg*. A new zoning bylaw would expand its interests to include the relationship between land use and transportation, reflecting the inseparable nature of the two. This would be done through the categorization of zones to coincide with the city-wide typology to be developed as part of a new *Plan Winnipeg*, a new Mixed Use Corridor zone to correspond to new street classifications, and improved urban design standards would relate building form to alternative transportation goals.

Finally, a reconstructed Winnipeg planning system would develop new public education and engagement strategies, opening up a higher level of public debate and discussion on issues of urban development and sustainable transportation, with the hoped-for result of broadening public and political support for such an agenda.

7 FINAL CONCLUSIONS AND DIRECTIONS FOR FUTURE

RESEARCH

Changes in the urban environment are always incremental. Whether the increment of discernible change will be 2 years or 10 or 50 depends on such variables as the amount of funding available to government, the pace of growth, and the interest and commitment of local leadership. But regardless of whether change happens quickly or slowly, well-funded or under-funded, there is a need for clear and forward-thinking plans and the right tools for implementation. Winnipeg is a city in a unique, and many ways unenviable, situation: the city is growing, but slowly; it faces chronic shortfalls in funding for infrastructure, not to mention everyday services such as community centres; in spite of the chronic shortfalls, there appears to be no sense of impending crisis, and therefore no widespread popular demand for change. But the job of planners, of course, is not simply to deal with the needs of today, but also to anticipate and plan for the needs of tomorrow. Winnipeg's current scenario, when coupled with the obvious problems associated with over-reliance on the car and the worldwide energy and environmental challenges, suggest that Winnipeg needs to do a much better job of planning for a future in which people rely on automobiles less and less, and other modes of transport more and more.

7.1 SUMMARY OF RESEARCH

The issue this research aimed to address was the sustainability of transportation systems. It identified the unsustainability of systems heavily-reliant on automobiles due to their massive costs for infrastructure, and their negative environmental and societal effects.

From a planning perspective, it was felt that this unsustainability could be addressed, in part, by remodeling urban form to encourage the use of alternative, more sustainable modes of transportation such as walking, cycling and public transit.

Three questions were posed and investigated by this research:

- What characteristics of the built environment encourage urban travel by modes other than the automobile?
- What has been the practical experience of urban areas attempting to change their built environment to accommodate and encourage travel by multiple modes? How were the plans formulated? What lessons do they offer for the implementation of such a program?
- Considering the experience of other municipalities, and considering the context of the current policy environment, how might such an agenda be applied to Winnipeg?

Research was undertaken, comprised of an extensive document survey, a focus group and multiple personal interviews of key informants. The bulk of the document survey investigated the interrelationship of transportation choice and urban form characteristics. Minor precedents, researched through another document survey, were investigated internationally (Groningen, Netherlands; Freiburg, Germany; Curitiba, Brazil) and in Canada (Hamilton; Edmonton; Vancouver) for approaches to transportation sustainability taken through changes to urban form. These minor precedents set a broad backdrop of measures cities around the world are taking to address transportation sustainability through changes to urban form. Major precedent studies, of planning processes in Toronto and Minneapolis, were investigated in detail to reveal how such urban form-focused planning approaches are operating in practice. These major precedents were investigated primarily by personal interviews with key informants, though document surveys were carried out to identify relevant plans and studies. Finally, a study of the Winnipeg context was conducted, researched by document survey and a focus group, to identify the potential for the application of a sustainable transportation planning agenda to the city. In the context of existing Winnipeg plans and planning processes, recommendations were made as to how best to integrate a sustainable transportation agenda into the Winnipeg planning structure.

Near the end of the writing of this practicum, it was discovered that a planning concept, IPM, which had formerly been believed to be a proposal only, was discovered to be an adopted City of Winnipeg policy. Personal interviews with involved planning professionals, as well as an investigation of the relevant policy and implementation

documents, were carried out to better understand the impacts and experience of this policy. The results of this further research have been used to refine the recommendations found in chapter 6.

7.2 FINDINGS OF THE RESEARCH

As background, arguments were presented in support of the assertion that an over-reliance on cars indicates a lack of sustainability in a transportation system. The economic implications are huge costs for infrastructure such as roads, and the impacts of rampant land consumption on industries such as agriculture. Environmentally, the automobile's consumption of resources is concerning, especially with growing oil scarcity. Autos are creators of air pollution, contributing to climate change and reduced air quality, water pollution from runoff, noise pollution due to traffic. Healthwise, air pollution impacts human health, as does obesity due to less active lifestyles. Socially, not all members of society are allowed to or physically able to drive, and not all can afford it either, yet these people are not well-equipped with alternative options in an auto-focused system.

7.2.1 *Literature Review*

The literature review took the concept of TOD as a starting point, as it is focused heavily on urban form to encourage alternative transportation choice, especially transit. However, TOD has had only limited success, suggesting that perhaps the concept is not yet completing the alternative transportation picture.

The ideal shape for TOD has long been considered a nodal form, with a high-speed transit station at the centre and development radiating outwards. Transport works in both linear and nodal ways, however; TOD could be reconceptualized to include both nodes and corridors, corridors also being possible 'centres' of activity. Streets can, and in some cases already do, operate as multifunctional urban spaces, offering opportunities for transport use by multiple modes, as well as offering space for uses other than transport.

More flexibility is needed in addressing alternative transportation through urban form than has been the case with traditional TOD. As well, there is a need to recognize that different urban contexts demand different approaches.

Three major elements of urban form were identified that contribute to alternative modal choice: increased density, mixed land use and supportive urban design. Density places more people into the same amount of space, while mixed uses bring a greater number of activities into that space. In combination, density and mixed use create proximity, reducing the distances needed to be travelled. Urban space in between buildings requires sensitive design to ensure that proximity will be complemented by convenience, making travel by other modes all the more attractive. Any one of these characteristics is not enough by itself: the three elements are interrelated and together create a whole that is greater than the sum of its parts.

If this practicum were done over again, less emphasis might have been placed on TOD. Although the 'nodes and corridors' approach is essentially a broadened conceptualization of nodal TOD, it is generally not discussed in literature as a subset of TOD, and therefore might have stood alone without the pains taken to define and pick apart the more traditional concept and its limitations.

7.2.2 Minor Precedents

The minor precedents offered a variety of Canadian and international examples: cities large and small, with differing forms of government, climates and municipal resources. The examples showed that there is no one way to move towards transport sustainability, but that it is not enough to simply say the right things and hope for the best: Hamilton did this for many years and had little in the way of results; Vancouver followed rhetoric with clearly articulated goals and policies (including targets for improvement), and has had great success.

Hamilton, of those investigated probably the city most like Winnipeg, is now making big changes, though much of the change is now being imposed by the provincial government. Winnipeg, though slow-growing and lacking resources, can make change

happen as well, and it would be better to do so on Winnipeggers' terms than those of the Province.

7.2.3 Major Precedents

Toronto and Minneapolis are pursuing very similar planning projects, though the two cities have quite different urban structures and urban cultures. Both are intensifying major streets by increasing density, mixing uses and improving urban design with alternative transport in mind.

These two projects showed the importance of engagement with community to make planning for these types of concepts work. By drawing people into the planning process in terms they can understand, it can help to spark public debate and create a positive force for change rather than the more common response to change: NIMBYism.

Planning must be pro-active and long-term in its thinking and commitment. It must also consider the needs of the market, as it is the development industry that is being looked towards to make many of the changes being envisioned.

7.2.4 Winnipeg Case Study

The benefits of pursuing a more sustainable transportation system in Winnipeg are undeniable: the focus group identified tangible economic, social and environmental benefits that would likely result from such an agenda. It was also felt that the city has a good base from which to start, with regard to its reasonably functional public transit system and an urban form with rough outlines of sustainability that could be built upon.

Unequivocally, the opinion was that Winnipeg needs to take steps. The attitude turned to skepticism, however, when the likelihood of such change occurring was brought up. Serious challenges exist in political and societal attitudes toward development patterns and forms of transportation, market dynamics and planning frameworks. A change in political attitudes is needed to push a sustainability agenda forward with any speed.

The breadth of opinions represented in the Winnipeg focus group was unfortunately not what was originally hoped for, and this part of the research is an area that, if time had allowed, would have been followed up further. Nevertheless, the general consensus that Winnipeg would benefit greatly from a more sustainable transportation system seems sound. Further investigation into this area of the practicum would hopefully have resulted in more precisely articulated ideas for how such a shift could be accomplished, strengthening the recommendations.

7.3 RECOMMENDATIONS FOR WINNIPEG

The pursuit of a more sustainable transportation system for Winnipeg should begin with a more integrated approach to land use and transportation planning, steps toward which have already been made by the City of Winnipeg administration, with initial indications of success.

Planning in Winnipeg has been dogged by a lack of precise political guidance, a situation which could be improved through a reformulation of *Plan Winnipeg*. This practicum recommends splitting the current single plan into a high-level corporate vision document, *Vision Winnipeg*, and a more detailed, land use and transportation focused implementation plan, the new *Plan Winnipeg*, to more clearly guide development and investment.

A new *Vision Winnipeg* should focus on principles and establishing goals. The language of the plan should be modified to be less equivocal about what types of development are desirable, and more firmly assert sustainable transportation concepts. Indicators, as are contained in the current *Plan Winnipeg*, should become targets, giving plan implementers a clearer idea of whether they are reaching the goals of the plan. Development targets like those seen in Ontario would give planners and politicians a tool to push developers to balance their activity, pursuing both urban redevelopment and greenfield projects.

The new implementation plan, addressing both land use and transportation goals in a single document, should develop a city-wide typology for development, identifying areas of the city most appropriate for different kinds of development, pursuing the

Toronto and Minneapolis processes on a broader scale more appropriate to Winnipeg's less robust redevelopment environment and more limited municipal resources. Tools that should be considered for implementation are tax increment financing, a tool available to the City since 2002. The direction from *Vision Winnipeg* to balance development activity should be given implementation tools in a new *Plan Winnipeg*, such as greenfield development levies that could be transferred to redevelopment projects, balancing the financial field for investment.

The Winnipeg Zoning Bylaw, already under review, should address the new directions coming out of *Vision Winnipeg* and a new *Plan Winnipeg*. Zones would need to be assessed for compatibility with a new city-wide typology. A Mixed Use Corridor zone should be created to implement the concept for major multi-modal corridors. And urban design standards directly addressing the needs of alternative transportation modes should be included for all zones to ensure that any new development or redevelopment in the city will support the incremental process of change towards sustainability.

Public education and increased public engagement should be pursued, drawing more citizens into the planning process and hopefully sparking a broader public debate about the city's needs and how best to pursue sustainability. Projects such as the city-wide typology would need to be pursued in close collaboration with the public to find ways to mesh sustainable planning interests with the needs and desires of communities.

Although Winnipeg's current situation seems to indicate a need for change, both the Winnipeg focus group and the research into IPM revealed that the political and social climate needed for significant change is not currently in the offing. But this is not to say that there is not public interest in alternative transportation issues. As the recent media exposure of Winnipeg's Critical Mass monthly ride and the campaign platforms of Winnipeg mayoral candidates indicate, there are some Winnipeggers, at least, who want change and are willing to make their voices heard (CBC 2006, Kaj Hasselriis website). The debate needs to be opened up and take place where it really counts: in public meetings and City Council Chambers, so that pro-active planning for an alternative future can move forward. Planners must do what they can where they can to put the agenda of sustainability at centre stage. The necessary decisions are ultimately up to the citizens, as voters, to influence the politicians they elect. It will also ultimately be up to them to,

quite literally, vote with their feet about how they choose to travel. In the meantime, planners must do what they can to prepare for a time when major change is ready to happen.

Again and again, in both the Winnipeg research and in that on other cities, the essential element for significant change was identified as political support. Cities that saw major changes appeared to have that support, cities that did not were lacking it. But if political support has been identified by this practicum as being essential to sustain change, how such political support can be found or fostered by planners is not terribly clear.

7.4 IMPLICATIONS FOR PLANNING PRACTICE.

In the Winnipeg context, this practicum suggests that more robust, pro-active planning is needed. It also suggests that a different model of organization and responsibility is needed. Although the capacity of planning departments to advocate for different approaches is hampered by a lack of time and resources, it is important that planning as a profession push for responsible planning practice: this means planners must strive for the ability to actually plan, rather than simply regulate. While this can be done partly through increased engagement with the public and by modifying existing frameworks, as has been proposed by this practicum, it should also be tackled by planning as a professional body. Planners who do not have the opportunity to plan are not playing their proper role in society. If the problem is that planning is not a respected and valued discipline, MPPI has a role to play in changing public and political attitudes about planning.

7.5 DIRECTIONS FOR FUTURE RESEARCH

There are numerous ideas discussed in this practicum that would benefit from further research.

With regard to the relationship between urban form and transportation choice, there is an increasing body of knowledge. However, there are various aspects of the debate that would benefit from increased investigation, such as the relationship between active environments and human health, for which resources were difficult to find for this practicum. An increased understanding of the interrelationships between the different elements of urban form would also be beneficial, and the degrees to which each are necessary elements. Some questions to which this practicum could find only partially-formed answers were: How mixed should mixed use be? What densities are optimal for alternative transportation? Is there an ideal combination of these different elements, or general principles that might be universally applied?

Of the major precedents, both the Avenues and CHI processes are in relatively early stages. Although conceptually well advanced, in terms of implementation and knowledge of how such projects will play out over time with regard to making improvements to urban form and increasing the use of alternative transportation options, the outcomes are less clear. Further research in the future would help to determine the potential of such projects to effect change in urban transportation systems.

With regard to the Winnipeg context, there remain a great number of unknowns, both within the recommendations of this practicum and external to them. Externally, there is a general need in Winnipeg for better knowledge to guide the planning process. The example cited in chapter 5, of Winnipeg transportation planners lacking adequate knowledge about where traffic flows actually are in the city, identifies an obvious and immediate need.

This practicum also lacked adequate engagement with those involved directly in the transportation planning and policy fields in Winnipeg. The research findings and proposals of this practicum would likely benefit from further refinement through the lenses of those on this side of the professional debate. External to the Winnipeg context, as well, there are changes occurring in the field of transportation engineering, such as the movement toward 'Context Sensitive Solutions' by the Institute of Transportation Engineers in the United States, that might have had further lessons for this practicum if time had allowed more in-depth investigation.

With respect to the recommendations of this practicum, more knowledge is needed for the practical application of these concepts. A better understanding of the Winnipeg public's needs and interests with regard to transportation and urban form is needed. More detailed analysis of concepts such as the transect, mixed use corridors and the development of appropriate urban design standards to encourage alternative transportation options would be helpful. Something that might have strengthened this practicum would have been a more detailed assessment of where Winnipeg's strengths and weaknesses lie with regard to urban form. What of the urban structure naturally lends itself to planning processes and policies as described in this practicum, and what detracts from their potential? This practicum has offered ideas about what would need to be changed in policy, but where exactly would these mixed use corridors go? How would the city-wide typology concept unfold with regard to Winnipeg's urban form? What would constitute the different development types and where would the lines be drawn?

Ideas about how planning could attempt to engage the public and spark debate about transportation sustainability have been offered, but should be refined and expanded to address more precisely the best approaches for the Winnipeg context.

Although it has been revealed as an essential piece of the puzzle over the course of this research, relatively few solutions to the lack of political support for change were ultimately uncovered. Further research into the Winnipeg political scene, or political dynamics in general, might reveal patterns or ideas for how sustained political support for major change in the direction of sustainability might be accomplished.

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8.2 PERSONAL INTERVIEWS

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- Minneapolis 1. Personal interview with key informant on the Corridor Housing Initiative planning process. July 2006.
- Minneapolis 2. Personal interview with key informant on the Corridor Housing Initiative planning process. July 2006.
- Minneapolis 3. Personal interview with key informant on the Corridor Housing Initiative planning process. July 2006.
- Minneapolis 4. Personal interview with key informant on the Corridor Housing Initiative planning process. July 2006.
- Toronto 1. Personal interview with key informant on the Avenues planning process. June 2006.
- Toronto 2. Personal interview with key informant on the Avenues planning process. June 2006.
- Toronto 3. Personal interview with key informant on the Avenues planning process. June 2006.
- Toronto 4. Personal interview with key informant on the Avenues planning process. June 2006.
- Winnipeg 1. Personal interview with key informant on the Winnipeg context. November 2006.
- Winnipeg 2. Personal interview with key informant on the Winnipeg context. December 2006.
- Winnipeg 3. Personal interview with key informant on the Winnipeg context. December 2006.

8.3 INTERNET RESOURCES

- CBSM. Community-Based Social Marketing website. www.cbsm.com
- Center for Neighbourhoods. Minneapolis. www.center4neighbourhoods.org
- City of Edmonton website. www.edmonton.ca
- City of Hamilton GRIDS. Policy papers webpage.
www.gridsmasterplans.com/English/Policy-Papers.html
- City of London website. www.london.ca
- City of Vancouver CityPlan. Municipal plan webpage.
www.vancouver.ca/commsvcs/planning/cityplan/dfvf.htm
- City of Vancouver Population and Housing. Population forecasts webpage.
www.vancouver.ca/commsvcs/cityplans/populationhousing/insightsintopopulationhousing.htm

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City of Vancouver Zoning Bylaw. Bylaw webpage.
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Kaj Hasselriis website. Candidate for Winnipeg mayor in the 2006 municipal elections.
www.kaj.ca

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PEP. City of Calgary's Planning Education Program project webpage.
content.calgary.ca/CCA/cityliving/communities/developmentplansandprojects/understandingtheplanningprocess/understandingtheplanningprocess.htm

Planning Academy. City of Edmonton project webpage.
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www.mah.gov.on.ca/userfiles/HTML/nts_1_22087_1.html#greenbelt

The Metropolitan Design Centre. Minneapolis. www.designcenter.umn.edu

Sustainable Minneapolis. City of Minneapolis sustainability webpage.
www.ci.minneapolis.mn.us/environment/Sustainability-Initiatives.asp

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VTPI. Victoria Transportation Policy Institute website. www.vtpi.org

Winnipeg Zoning Bylaw. Comprehensive Review of the Winnipeg Zoning Bylaw 6400/94 project webpage. www.winnipeg.ca/ppd/zoning_6400review:stm

Note: All internet pages and internet-based documents were current as of March 2007.

9 APPENDIX – INTERVIEW GUIDES

9.1 SEMI-STRUCTURED INTERVIEWS

A) Interviewee's Involvement

What is your role in the Avenues/Corridor Housing Initiative planning process?

- How did you get involved?
- Why did the planning project interest you?
- What hopes did you have for this process?

B) Goals of the Process and Public Context

What are the urban challenges that this planning process aimed to address?

- What discussions went on in the city/neighbourhood prior to the commencement of this planning process?
- Whose initiative was this process?
- What problems sparked the need for this process?

C) Role of Urban Form

What role does urban form (increased density, mixed land use, urban design) play in achieving the goals of this process?

- Were these concepts central to the discussions?
- Was a connection made between urban form and transportation choices?

D) Measures of Success

What worked or did not work in the planning process?

- Were participants well engaged?
- Were all issues addressed?
- Were all the relevant voices heard?

What works or does not work with the plan and its implementation?

- Is the plan acceptable to the community?
- Is the plan acceptable to developers?
- Do politicians support the plan?
- Have results been seen, projects built?
- Have any serious barriers to implementation cropped up?
- What is the plan unable to do?

If this process were to be repeated, what might be done differently, and what elements do you think should definitely remain?

E) Broader Perspective

Are plans such as this enough, or are there other things governments and communities could be doing to achieve the goals of this planning process?

- Transportation system improvements?
- Government grants, tax incentives or penalties?
- Other regulations, plans or community initiatives?

9.2 FOCUS GROUP

A) The Sustainable Transport Agenda

What benefits would there be for Winnipeg in pursuing a sustainable urban transport agenda?

- Economically?
- Environmentally?
- Socially?

B) The Role of Urban Form

What role do you think changes to Winnipeg's urban form (increased density, mixed land use, supportive urban design) have to play in the pursuit of such an agenda?

C) Adapting Plans and Tools

What changes would need to be made to the following plans/by-laws to incorporate such an agenda:

Plan Winnipeg? Transplan? The Winnipeg Zoning By-law?

Does the current revamping of the Winnipeg Zoning By-law allow for future changes in transportation policy or urban form goals as suggested by a Sustainable Transport Agenda?

Would neighbourhood-level redevelopment plans, developed in collaboration with community members, make sense for Winnipeg as a second stage of policy development?

- Why or why not?

D) Broader Perspective

In your opinions, is there public support out there for the changes necessary to achieve sustainable transport goals?

- What would public support depend upon?

Are changes to plans such as this enough, or are there other things governments and communities could be doing to achieve changes in urban form and a more sustainable transport system?

- Transportation system improvements?
- Government grants, tax incentives or penalties?
- Other regulations, plans or community initiatives?

9.3 FOLLOW-UP INTERVIEWS – INTEGRATED PLANNING MODEL

Several of my practicum recommendations relate directly to recommendations made by the IPM. The IPM came to my attention near the end of my research. I am now trying to determine what has happened with the implementation process of the IPM to see what lessons I can draw from it.

There are a few specific components of the IPM that are directly connected to my practicum recommendations:

- 1.1 Planning Director should advise EPC on development matters
- 1.2 Create PEAC as a sub-committee of SMT
- 1.3 Reconfigure Plan Winnipeg into 2 documents, one a corporate vision and one a detailed development plan
- 1.4 Create 4 new full-time positions to work on secondary plan development
- 1.6 Create a Transportation Planner position within PP&D

What has your role(s) been in the IPM process?

To what extent have the above items been implemented?

Work on Plan Winnipeg?

What was the original timeline of the project?

- Has implementation lagged? Moved faster than expected?

What have been the challenges in implementing the IPM?

- Expected? Unexpected?
- Resource challenges?
- Political support?

Has the direction changed at all as the implementation process unfolded?

- Have any directions from the original report proved unworkable?
- Have any new ideas/recommendations emerged as a result of trying to implement the report?

Is there a noticeable difference between the way development issues are dealt with within the city today, as opposed to before the adoption of the IPM?

- Has there been a broadening of understanding about development issues in different departments?
- Increased collaboration/coordination?